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This magazine is dedicated to the interpretation, in authentic and popular form, with extensive illustration, of geography in its widest sense, first of Canada, then of the rest of the British Commonwealth, and other parts of the world in which Canada has special interest.

The British standard of spelling is adopted, substantially as used by the Dominion Government and taught in most Canadian schools, the precise authority being the Oxford Dictionary as edited in 1929.

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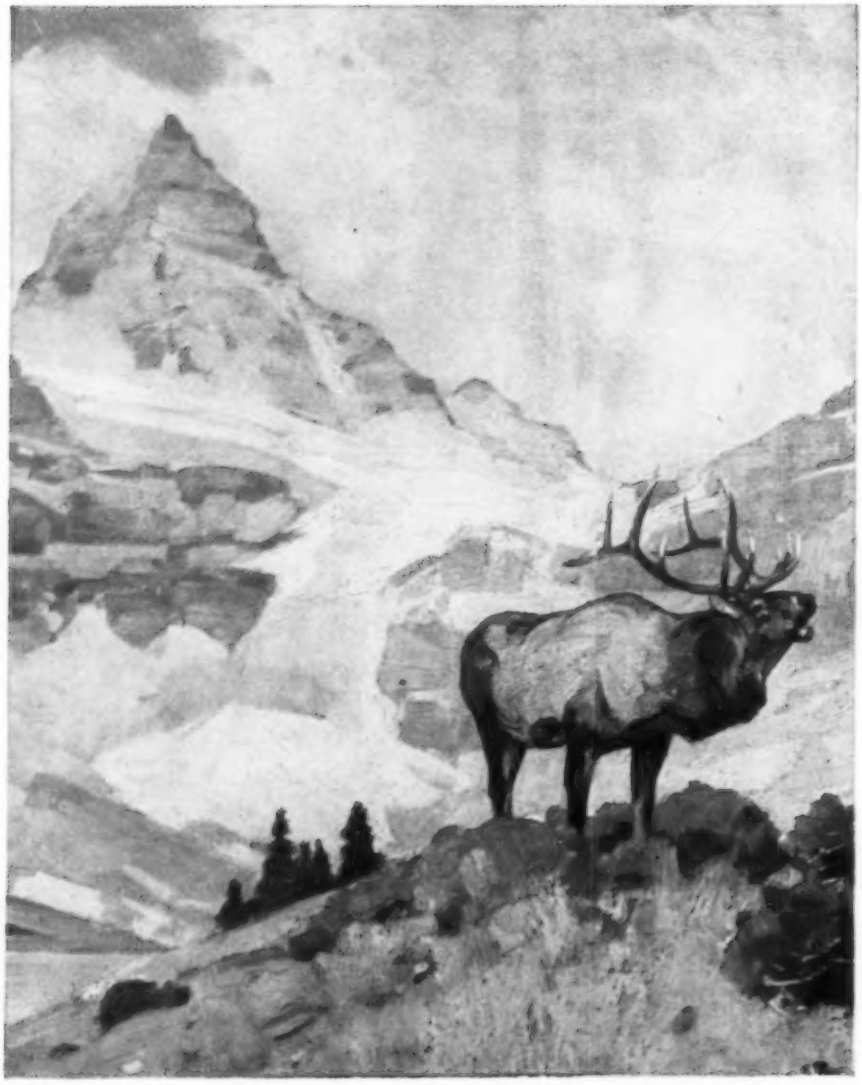

From a painting by Carl Runcius, N.A.

The wapiti or elk (cervus canadensis) is the handsomest of Canada's native deer and, next to the moose, the largest. It was at one time the most widely distributed member of the deer family in North America. To-day its range in Canada is restricted to limited regions in British Columbia and the Prairie Provinces.

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Canadian Geographical Journal

Beauharnois Power Works

By Louis Huot

MORE than three thousand men are toiling night and day to build the Beauharnois Canal between Lakes St. Francis and St. Louis, and set a hydro-electric plant at the lower end which will soon be producing half a million horse-power and may some day develop four times that much. The task is gigantic.

As the St. Lawrence River leaves the international section above Cornwall, Ontario, it enters the province of Quebec and widens into Lake St. Francis. 25 miles further on it descends through a series of rapids to Lake St. Louis. There are the Coteau, Cedars, Split Rock and Cascade Rapids, and the total drop is 83 feet. This is generally called the Soulanges or Beauharnois section of the river.

Here the Beauharnois Power Corporation is building a canal through which to divert about a quarter of the flow of the St. Lawrence.

Near Beauharnois, at the lower end of the rapids, the river widens again, this time into the slow-moving water of Lake St. Louis which reaches 20 miles to the famous Lachine Rapids, which are four or five miles in length, and just below them is the harbour of Montreal.

The entrance of the new canal is on the southern shore of Lake St. Francis, a mile or so from the town of Valleyfield. The route swings in a slow curve southward, following the most favourable contours of the land. It enters Lake St. Louis near the village of Beauharnois. Water will be brought down at the level of Lake St. Francis, and here, at the power-house, the full drop will be concentrated. This permits the maximum development of power.

The canal is 15 miles long and over 3,000 feet wide. Should more water be authorized it will be possible with further dredging to send the entire flow of the St. Lawrence through the canal.

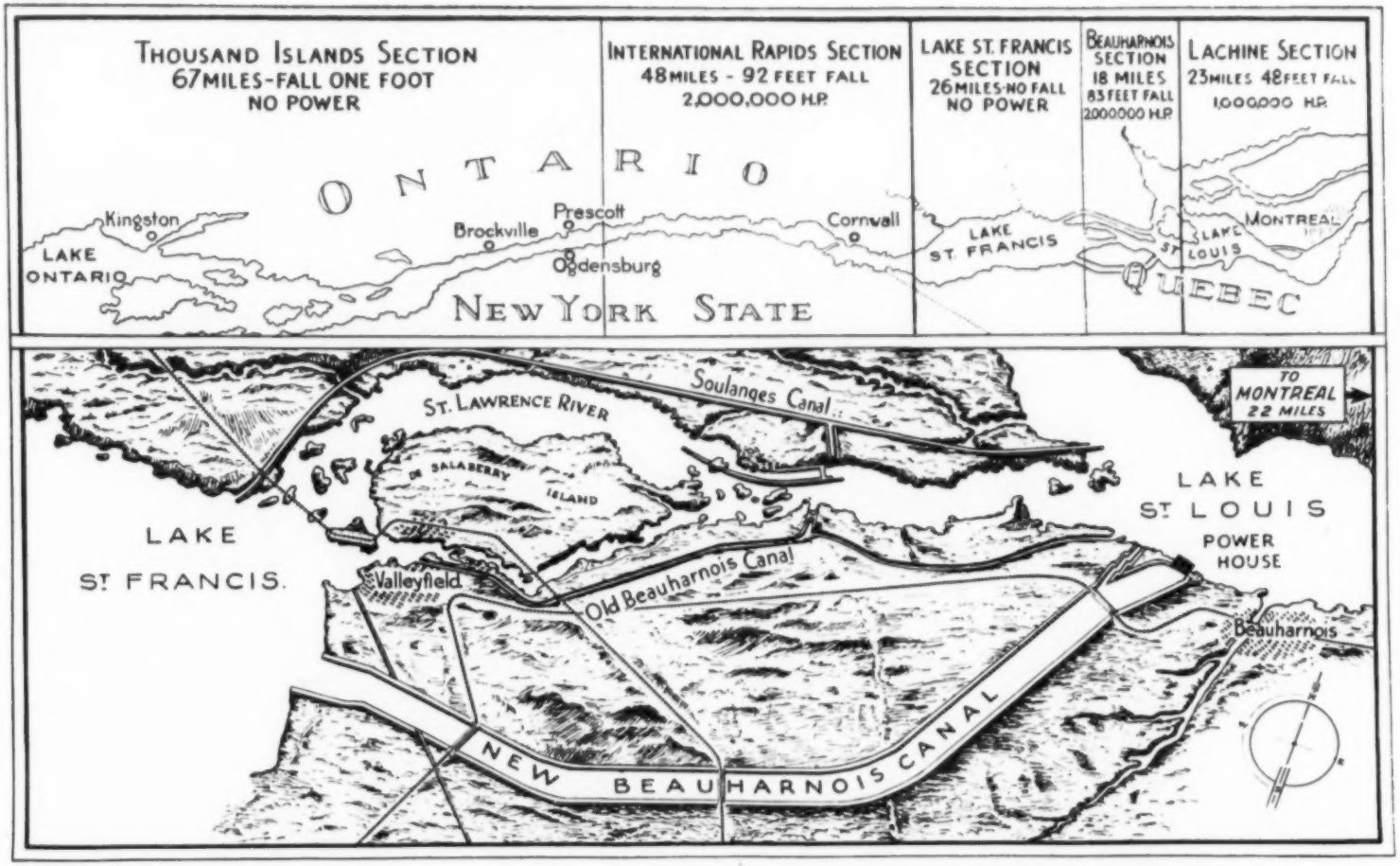
LOUIS HUOT

is a journalist who has worked in New York and Paris. During the last two years he has been on the staff of the Montreal Gazette. Born in Duluth, Minnesota, he received his early education in that state and later attended Columbia University.

The power house is being built for ten 50,000 h-p. units and two 8,000 h-p. auxiliary units. By October 1st, 1932, it is planned to produce 200,000 h-p. Further units will then be installed from time to time until the plant has been equipped to produce 500,000 horse-power, its initial capacity. It will approximate the Queenston development, or that of Ile Maligne on the Saguenay. The famous Keokuk plant on the Mississippi produces 300,000 horse-power. To develop half a million horse-power at Beauharnois will require as much water as the average flow of the Ottawa River, or four times as much as goes over the American Falls at Niagara.

Should its ultimate capacity of 2,000,000 horse-power be realized, Beauharnois would be the world's largest hydro-electric installation in a single power-house. The 500,000 horse-power will be produced in a plant 1,000 feet long which may ultimately be extended to 3,000 feet. This enlarged plant would carry through its turbines practically the whole flow of the river. The power-house is about the height of a 10 storey office building.

The work is being carried forward under the direction of three consulting engineers, Frederick B. Brown, Dr. T. H.



In the lower map is shown the new Beauharnois Canal relative to the old Beauharnois Canal. In the upper diagram a comprehensive idea is given of the various sections of the St. Lawrence, the mileage, feet of drop, and the potential horse-power which may be developed in each section.

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Beauharnois shunting yards, concrete mixer and construction camp at night.

The bed of the tail-race and the draft tubes which carry the water from the turbines. Some idea of the magnitude of the construction work can be had from the size of the men in the picture.

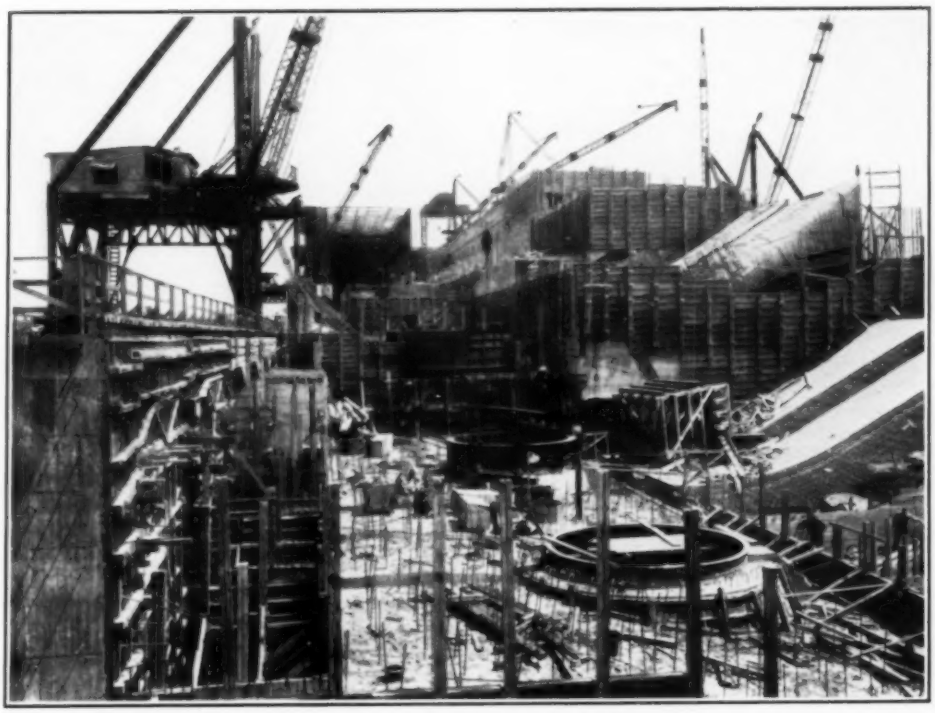
Hogg and W.S. Lee, who worked together in the preparation of a report on which the Beauharnois construction was based.

The ship channel will be in the bed of the canal and it will be 600 feet wide and 27 feet deep. When the work is completed the Government can install two 45 foot ship locks near the power-house, and the new canal will then be ready for navigation.

Thereafter, should the St. Lawrence Deep Waterway plan be carried out, all that will still be required in the Canadian section of the river, will be adequate canal facilities at Lachine Rapids.

All this seems like a super-modern conception, but in reality it is but the expansion along modern lines of a development that was first glimpsed, quite possibly, by the 14th Governor of French Canada, Marquis Charles de Beauharnois, who, together with his brother Claude, received the land on which the canal is being built from Louis XV. The Marquis was a grand uncle of Alexandre de Beauharnois, first husband of Josephine Tascher de la Pagerie—later the Empress Josephine. The grant was made in 1729. The Marquis and his brother became seigneurs of a territory lying between the two lakes on the south side of the rapids, having an area of about 324 square miles. It bore the name of Villechauve, and was granted under the usual conditions of faith and hommage.

Little was done to clear the land or develop it. Sawmills were to be built but apparently they were not constructed until nearly half a century later after a new act of concession had been made by the king, granting the title to Francois, son of Claude de Beauharnois. Francois sold the seigneury to Michel Chartier, seigneur de Lotbiniere, in 1763, and he it was who first undertook the serious development of the estate. But he too sold the property. He had built sawmills and had begun the construction of a grist mill whose water rights, in the St. Louis River, were to form the basis of those which the Beauharnois Power Corporation has acquired, but he sold the estate



Construction work on the Beauharnois power-house. In the background is the steel superstructure of the building. On the right is the bulkhead or up-stream side of the plant. In the foreground the steel workers can be seen assembling the last three 50,000 h.-p. water wheels. On the left the cranes on travellers are moving on what is to become the highway on the down-stream side of the power-house.

to Alexander Ellice before it was completed.

The new seigneur evidently meant to occupy himself seriously with the development of his property, for he established an agent there and had a surveyor make a general plan, dividing the seigneury into sections which he named after the members of his family. Many of these districts still bear the names he gave to them. He rechristened the seigneury, calling it Annfield, after his wife, Ann. A Scotch carpenter, John Simpson, was engaged to build the grist mill near the falls in the St. Louis River—but Ellice died in 1804 and his oldest son, George, succeeded him.

There followed, for the seigneury, a period of almost complete inactivity. A little timber cutting and colonization had been done, but the new heir failed to interest himself in carrying on the work. One day he embarked for South America and never returned. The mill lay idle a while, for the power of the river was insufficient to operate it; then the agent, Francis Winter, decided to dig a small feeder canal from Lake St. Francis, which would bring water from the St. Lawrence through his sluices. His plan was successful and for a little while the mill's two molars were busy, but soon sand stopped the mouth of the little canal, and the wheels were quiet again.

In 1817 Robert Ellice appeared as the head of the family, and the work of clearing land began again; but he remained in control only a very short time. Before 1820 Edward Ellice, another of the sons of Alexander, took over the family's properties. It was then that the estate really began to prosper. The mill was immediately repaired, the canal cleared out, the land given to tenants, immigrants were brought from Scotland and roads cut through the forests.

Marquis Charles de Beauharnois, 14th governor of French Canada.

In 1837 the mill was burned down. Edward Ellice had it rebuilt without delay. The corner stone was laid on June 11th, 1837, by the agent, Lawrence G. Brown.

In the following year, in the month of November, Edward Ellice Jr., who lived at that time in the manor house which had been built about 1810, was made a prisoner. After the rebellion he returned to England and attempted to dispose of the seigneury. A London banker named Scott bought it but after a few years it was returned to Ellice because of the unsatisfactory administration of the agent, Colville. The family retained it until 1845 when seigneurial tenure was abolished in Canada by order of Parliament. According to the report of the commissioner, Henry Judah, dated December 1st, 1860, the seigneury consisted of 354 lots and its value was fixed at $408,834. The compensation due by the Government was $78,890.83.

It is interesting to note here that the Beauharnois Power Corporation, in buying only a narrow strip from the north side of what was once the seigneury, paid around $4,500,000.

In 1866 the property was sold by Edward Ellice to the Montreal Investment Association for $276,000, plus $1,166.67 for certain original rights. Since then it has been resold and sold again.

Falls in the little St. Louis River around which the first efforts to develop power in this district centred. The old Ellice mill was built near here.

The mill built by Ellice was sold in 1867 to Hon. C. S. Rodier, who disposed of it almost immediately to M. Doutre, who, in turn, sold it to Antoine and Stanislas Viau in 1880. Subsequently Antoine Viau became the sole proprietor. In 1888 the mill was gutted by fire.

Joseph Barthelemi Robert, from whose son R. O. Sweezey acquired his first water rights for the Beauharnois development, then purchased the mill from Viau and rebuilt it, adding two storeys of brick. He installed Hungarian flour mills and machines of modern type for grinding corn.

When Mr. Robert settled in Beauharnois in 1858 he erected a woollen mill which also obtained its power from the St. Louis River. He was the first to realize the possibilities which lay in ownership of the little feeder canal, and in 1888 he bought it. He acquired properties which further strengthened his position; he fought lawsuits when his rights were questioned or endangered; he carried out many long negotiations with the Government—and finally, in 1902, he organized the Beauharnois Light Heat and Power Company.

Through the death of J. B. Robert, in 1908, the company passed into the control of W. H. Robert, son of the founder, who continued with the preliminary work, acquired further assets and undertook necessary negotiations with the Government.

Blank-Stroller photograph.

R. O. Sweezey, founder and president of the Beauharnois Power Corporation.

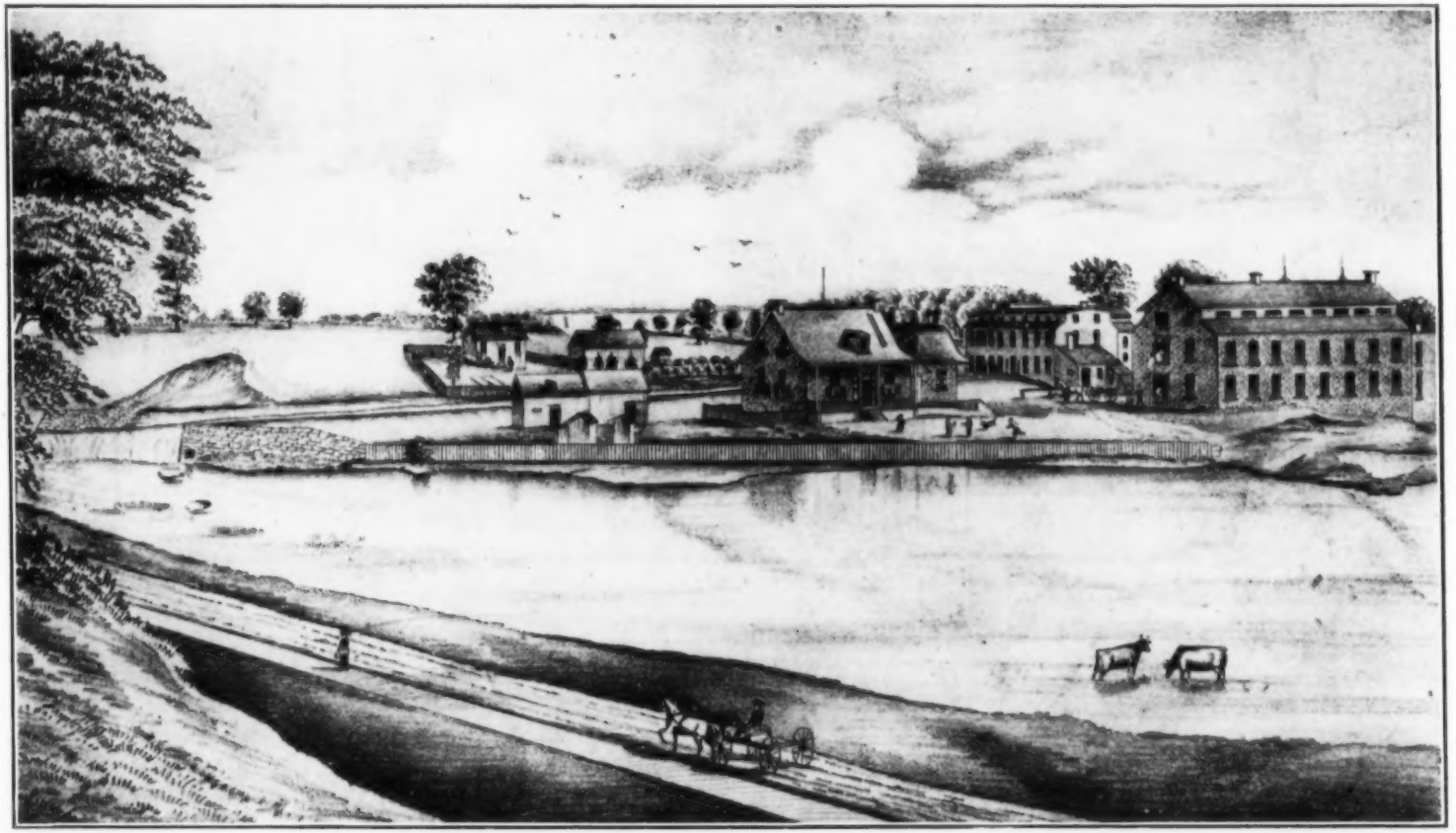
Finally, in 1913, the project, now well developed, was laid before Max. Aitken

The white house is Annfield Seigneury, once the home of the Ellices, famous in the history of the fur trade.

Compagnie Aerienne Franco-Canadienne photograph.

Dykes heaped up by the steel tower excavators are shown here defining the curve of the canal. One of the machines is seen at work in the foreground. The inside faces of the embankments are being lined with rock. The white line in the centre of the canal is part of the construction railroad.

Dykes heaped up by the steel tower excavators are shown here defining the curve of the canal. One of the machines is seen at work in the foreground. The inside faces of the embankments are being lined with rock. The white line in the centre of the canal is part of the construction railroad.



Old sketch of the Bay Woollen Mills, established in 1858 by J. B. Robert. The scene is on the St. Louis River. The stream in the back really flows from the left, entering the mill on the right, but it is drawn to look as though it ran the other way.

The "R. O. Sweezey," one of the largest suction dredges ever built, which is used at the western end of the job. Exposed in the foreground is her big cutter.

(to-day, Lord Beaverbrook), for whom Mr. Sweezey investigated the undertaking. Then the war came.

From 1900 onward the idea of expanding the project was investigated repeatedly. Before the war there was no visible market for 200,000 horse-power, the minimum installation which justified construction of the Beauharnois Canal, and after the war there were inevitable delays.

In 1925 the project was again investigated by Mr. Sweezey. Considering it sound economically and possible politically he took an option on the Beauharnois Light Heat and Power Company. In 1927 application was made to the Quebec Government for permission to divert more water and to let it flow directly into Lake St. Louis instead of through the St. Louis River. The application, however, was made so late in the session the Government engineers were unable to prepare a report before it closed, and the application had to be renewed in 1928. At this time the Company's requests were granted, and in March of the following year the Dominion Government gave its approval. On August 1st, 1929, work began. There was a celebration in which the blessing of the church was given by the Apostolic Delegate, the Governor General standing by, then tons of dynamite shattered the rock at the power-house site to prepare the way for one of the world's largest electric shovels.

During 1929 work of a general character was carried on. It included the erection of construction camps, the assembling of one of the largest hydraulic dredges, some miles of dyking and embanking along the route of the canal, and the building of the first few miles of the construction railway. In the spring, with full crews, operations began all along the way.

The work of construction may be conveniently treated here in four main sections. The first is three and a half miles long and lies just below Lake St. Francis. Here the natural level of the land is from three to four feet below that of the lake, which was dyked many years

Rear view of the "R. O. Sweezey." The square gantry serves to lift and lower the two piles with which the dredge moves forward, working first on one, then on the other.

ago. In this section drag-lines are building embankments and the dredge has excavated a channel 27 feet deep.

The pump of the dredge is operated by a 2,200 horse power motor. Its rated capacity is 1,100 cubic yards an hour, and in the month of July it moved 818,000 cubic yards, setting what is believed to be a world's record.

It was designed to dig to a maximum depth of 35 feet below water level and to deliver its output at an elevation of 30 feet after sending it through nearly a mile of 26-inch pipe The pump will pass stones 18 inches in diameter. The whole assembly, which is 126 feet long and 40 feet wide, was erected in a pit, 3 miles from Lake St. Francis. When finished, water was supplied and the dredge was permitted to suck its way out.

Section two reaches a mile through an area in which the land is partly above the lake level. Boulders in the marine clay necessitate the use of electric drag-line shovels. These have a capacity of four and five cubic yards. Like the rest of the Beauharnois equipment they are operated day and night.

Section three includes about two-thirds of the canal. It reaches from section two to the escarpment at Beauharnois. Here the natural level is from 5 to 14 feet below that of Lake St. Francis, so much more embanking than excavating is required. The work is being carried

Steel tower excavator. This is the head tower. The tail tower, to which the cables in sight here connect, is 750 feet away. The bucket carries 10 cubic yards of earth at a time and the tower is 130 feet high. The whole assembly is movable.

on by the most powerful machinery. While the dredge, which was floated from section one through a narrow canal cut by the drag-lines in the boulder clay, is busy cutting a channel along the northern embankment, five movable steel tower excavators heap up the dykes. They are electrically powered. Each handles 10 cubic yards per bucketfull, or a total of approximately 210,000 cubic yards a month. The space between the head and tail towers is 750 feet. The head tower is 130 feet high.

Section four, which is only 2,500 feet long, lies at Lake St. Louis. Most of the excavation at this point is being carried on by a shovel of the same design as the familiar steam shovels but operated by electric motors. The length of the boom is 93 feet and the dipper handles eight cubic yards of rock at a time. The boom weighs 160,000 pounds, and the whole shovel weighs 1,105,000 pounds.

Four travelling cranes have been erected here to pour concrete for the power-house. Nearby is the rock crushing equipment, able to handle 250 tons of rock an hour and carry it into the concrete mixing plant where a pair of mixers handling two cubic yards at a time each, operate incessantly, fed from above with ingredients automatically weighed. The material is moved back and forth over the construction railway, of which there is now in all about 40 miles.

Other operations along the route of the canal include altering the course of the St. Louis River in a section about a mile long where the old bed is crossed by the canal. Here a drag-line shovel excavated the new watercourse. On the northern bank a ditch has been dug close to the embankment in order to drain properties which formerly sent their surplus water across the course of the canal into the St. Louis River. It has also been necessary to divert both the Canadian National Railway and the New York Central lines in order to have them cross the canal at right angles instead of obliquely Extensive highway diversions were also required. The canal route traverses the old feeder canal, so a new one has been made on the south side.

About 11,200,000 cubic yards of rock and clay were moved in the past year, but this is only a beginning. Before the canal can be flooded in 1932 and the generators set to work, 31,900,000 cubic yards must be moved. For the 500,000 horse-power installation it will be necessary to excavate 72,000,000 cubic yards. In the Soulanges section of the St.

Lawrence there are already four plants in operation. They do not, however, take full advantage of the head available. They are:

Company	Head of water in feet	Cubic feet per second	Installed H-P.
Cedars Rapids Power & Manufacturing.....	30	56,000*	200,000
Canadian Light and Power.....	50	6,000	30,400
Provincial Light, Heat and Power.....	52	3,300	16,000
Montreal Cotton.....	11	13,000	12,000

*Uses 75,000 cubic feet per second in winter.

These figures show a total development of some 260,000 horse-power. If the same water were to be diverted through the new Beauharnois Canal it would produce a total of 700,000 horse-power.

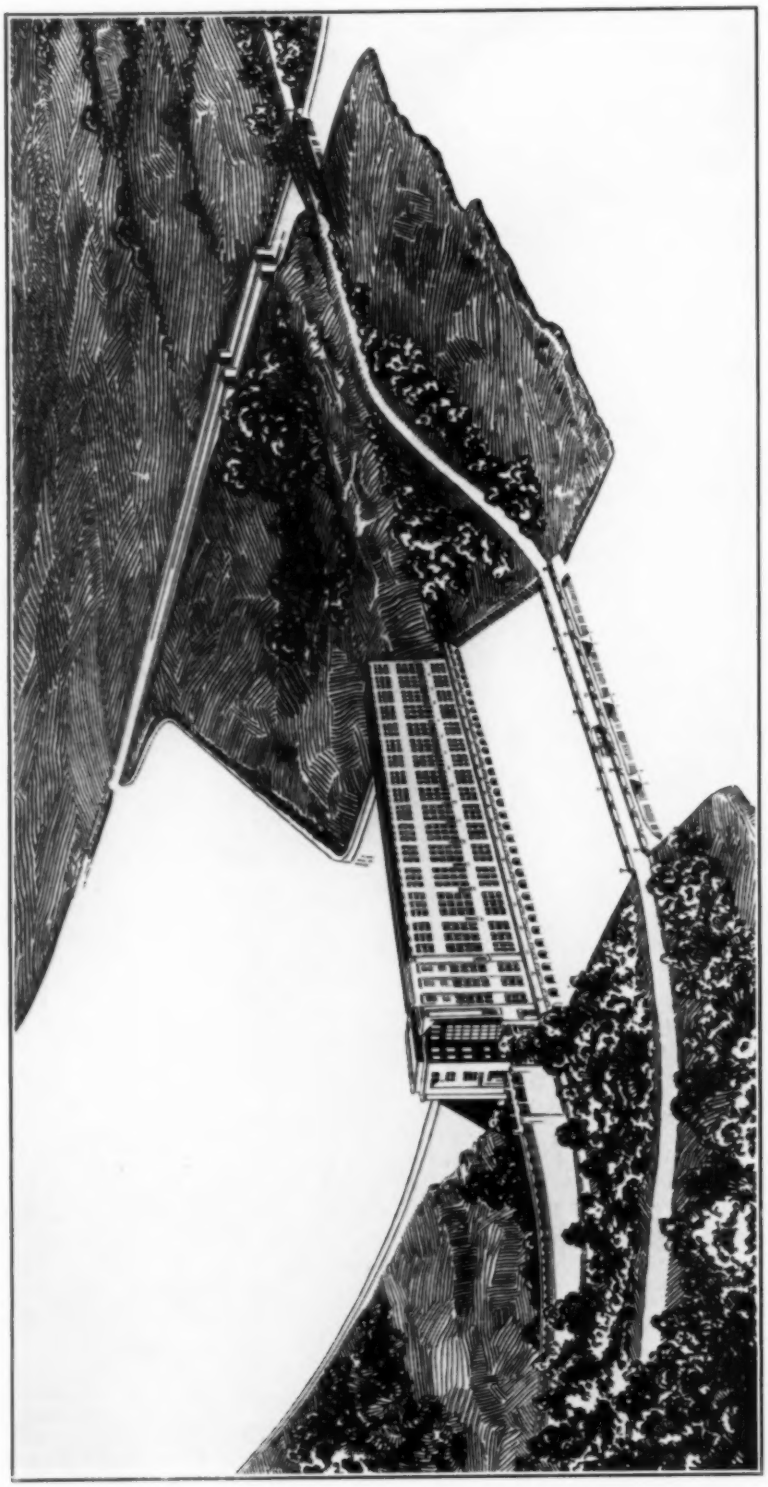
Montreal Cotton's water rights have already been transferred to the Beauharnois Power Corporation. For the future there exists the possibility of similar transfers or some form of co-operative effort whereby a more economical use will be made of the existing water rights. Further, there exists the possibility of expansion through the diversion of more water from the river. The average flow of the St. Lawrence is 220,000 cubic feet per second. The existing plants divert about 80,000 cubic feet per second, and Beauharnois will divert another 53,000. This leaves close to 100,000 cubic feet per second running idly down the river, and if passed through the Beauharnois Canal it would permit a further development of about 1,000,000 horse-power.

The history of these power plants and of the canals on which they are built begins far back. There are reaches of navigable water between the rapids in this section of the river; thus the first effort to connect the lakes for navigation, in 1779, consisted of the building of four locks. This work, done by the Royal Engineers, was completed in 1783. In the following year the locks at Split Rock and Coteau du Lac were replaced by a single canal. Later the breadth of these canals was doubled and their depth increased to three and a half feet in order to admit Durham boats and large Bateau carrying a hundred barrels of flour.

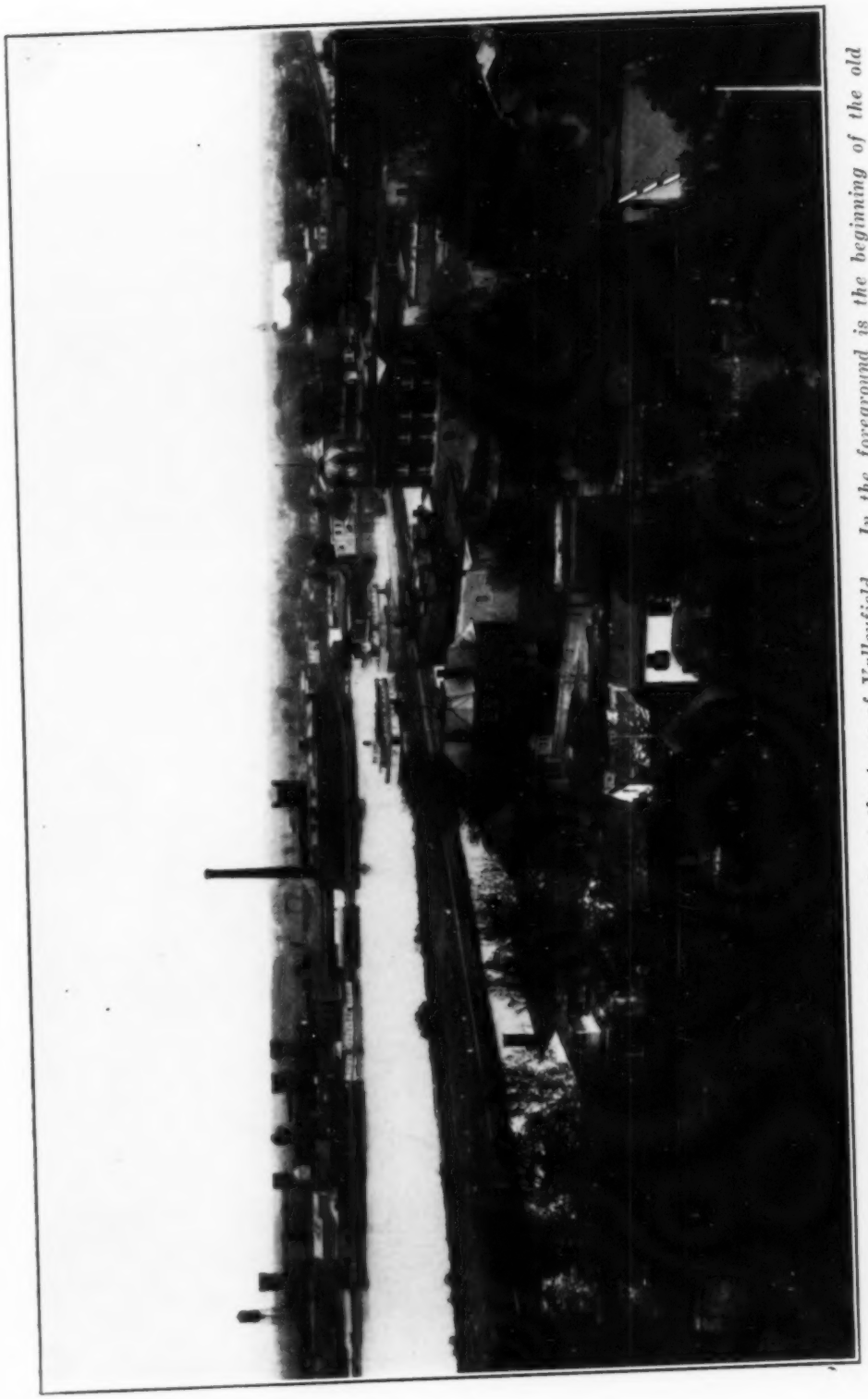
The Government of Lower Canada appointed a commission in 1833 to investigate this stretch. In 1834 their engineer, John B. Mills, submitted three plans, all of which contemplated a canal on the north shore. He recommended building three short canals and utilizing two navigable stretches between the rapids. This plan was approved by a special committee of the Assembly which recommended that a grant of money be made to carry it out, but no further action was taken at that time, and in the same year Alexander Stevenson submitted a plan to Parliament for the building of a canal at lower cost on the south shore. Further plans for the south shore canal were presented in the following year. But the work was still unattempted in 1839 when Lieut. Col. Phillpotts made his report to

(Continued on page 312)

The bucket of the electric shovel which is carrying out the entire rock excavation for the Beauharnois power-house and tail-race. When loaded to capacity the bucket holds almost ten cubic yards.



Architect's plan of what the power-house will look like when completed.



Boats on the lower end of Lake St. Francis, at the town of Valleyfield. In the foreground is the beginning of the old Beauharnois Canal.

Panorama of 500,000 h.-p. plant nearing completion. On the left is the wing wall seen part of the

Panorama showing part of the power-house construction work and tail-race excavation. completed virtually the entire power-house and tail-race excavation

which will lead the water into the up-stream side of the plant. On the right can be tail-race excavation.

On the right is the 8-cubic-yard electric shovel which, by working night and day, has work. On the right, also, is the St. Lawrence at Lake St. Louis.

(Continued from page 307)

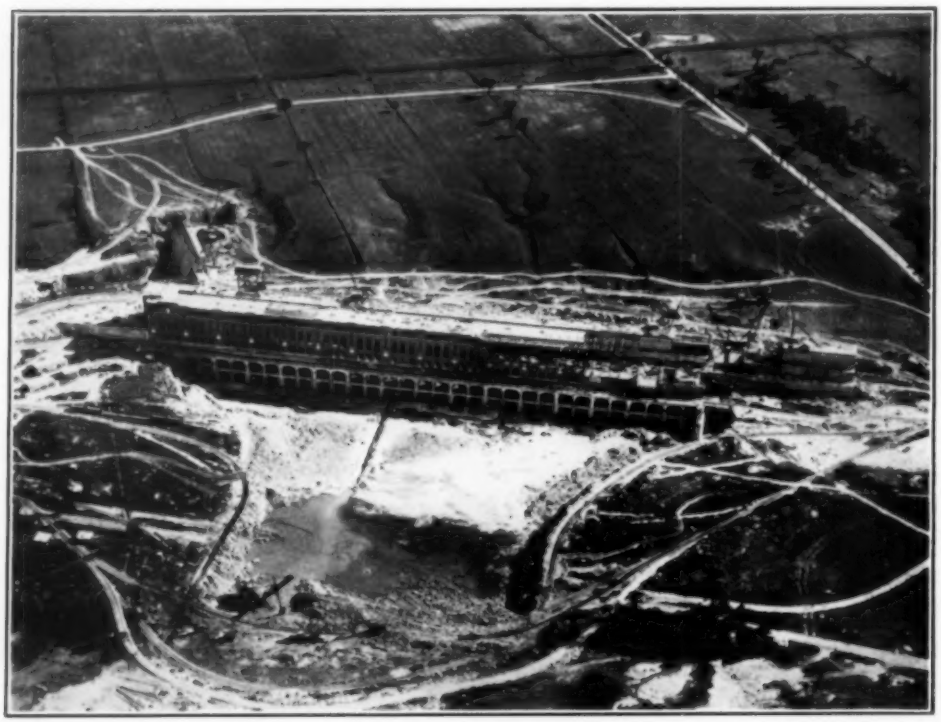
Lord Durham on canal navigation in Canada. While conceding that a canal on the south shore would cost less than one on the north, he considered the former undesirable from a military point of view and adhered to Mill's plans.

But after much discussion the old Beauharnois Canal was finally built on the south shore. Contracts were awarded in 1842 and the canal was completed late in 1845 after mutinies in the camps and skirmishes in which lives were lost before Militia could arrive from Montreal. The canal was 11¼ miles long. It had nine locks, 200 feet long and 45 feet wide, built to provide nine feet of water. But the upper entrance was dangerous, passing through a narrow, rocky channel beset with treacherous currents. The steamboat "Magnet" sank there in 1849 and large sums of money were spent subsequently in an effort to improve the entrance.

Then in 1891 it was decided to build the Soulanges Canal. In 1899 the work was completed. This new aid to navigation was 14 miles long. It had five locks, and 14 feet of water was available on the sills. After it was opened the old Beauharnois Canal was little used. In 1907 it was rented by the Government to the Canadian Light and Power Company which has used it for power ever since.

So far we have been considering events of the near and distant past. What of the future?

The imagination of the reader must have been speculating about it from time to time. "Before the war there was no visible market for 200,000 horsepower." In the second quarter of this century words like these suggest prophecies for Canada. A score of years have discovered not only a market for 200,000 horse-power but for 500,000 horse-power. Since 1900 the demand for electric power has grown at the average rate of 12 per cent compounded annually. The requirements of this industrial area of the upper St. Lawrence basin have doubled every seven years. To-day about 2,100,000 horse-power is used there.

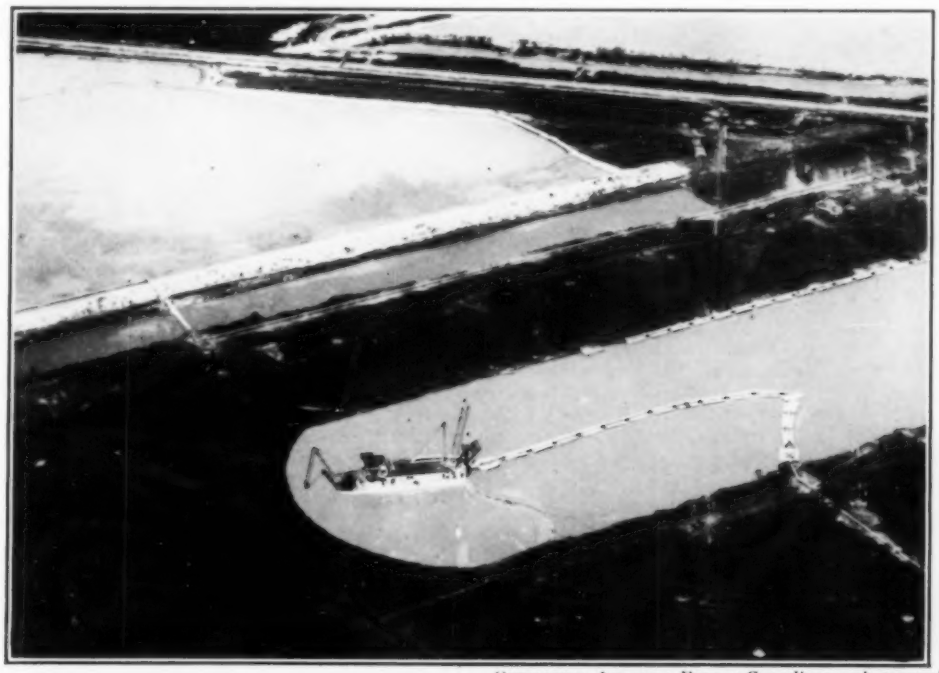


Aerial view of power-house and tail-race excavation. In the immediate foreground are the shores of Lake St. Louis.

In 1937 will the demand in this section have grown to 4,200,000 horse-power? In the minds of those who have studied the question there is little doubt. They firmly believe it will.

Power developments are going on everywhere and the producers of energy will be ready to meet the demands of the market. The Beauharnois Power Corporation has already sold 95 per cent of its initial output—and the transaction was made more than two years before taxed—and that soon; but it would seem unreasonable to believe that power which will need nothing for its creation beyond a little dredging on the floor of the canal and the elongation of the power-house will be permitted to remain undeveloped 22 miles from the heart of the industrial area while tons of water splash over spillways or go roaring through rapids, thunderously and uselessly descending to the sea.

1,500,000 horse power—the difference



Compagnie Aerienne Franco-Canadienne photograph.

Aeroplane view of the dredge working at the upper end of the canal near Lake St. Francis. The expanse of water in the background is a settling basin formed by low dykes.

the output could be sent singing into town over the high-tension lines of the new power-house.

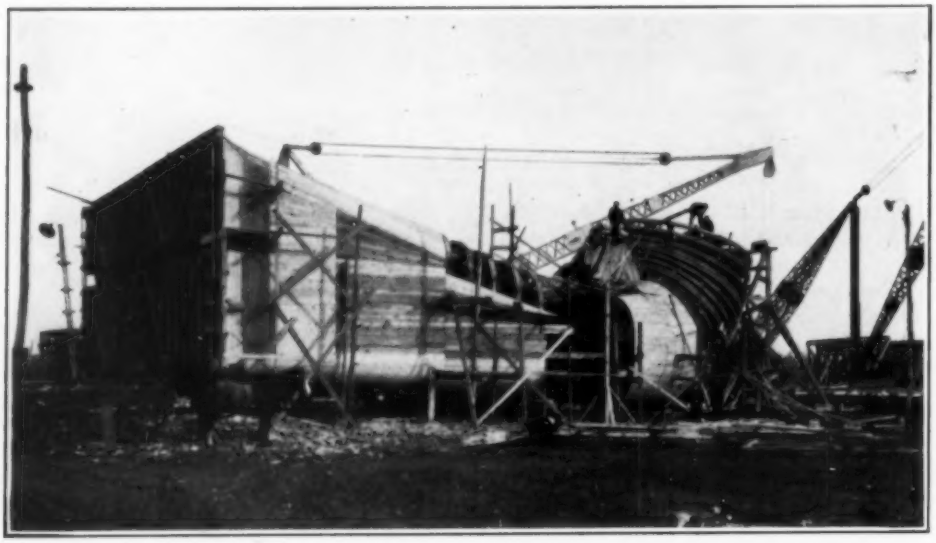
Indeed, the far-sighted observer who looks to the end of the next decade and imagines the Montreal area consuming nearly 5,000,000 horse-power should be more nearly correct than the cautious individual who dares be timid in his speculations. It is probable that there will be a demand for every watt hydro-electric generators can produce.

It does not seem unreasonable to assume that the full potentialities of the Beauharnois development will be between the initial installation at Beauharnois and the full potential development—means work to many thousands.

Once the establishment of a mill on the little St. Louis River was good business for the feudal owner of a large terrain thereabout. The tenants, really serfs, would be sure to produce more grain if assured an opportunity of having it ground into flour at small cost. The story of that mill is written here. No great lapse of time separates those days from the present (the mill was still grinding flour in 1920), and no great change has taken place in the

Interprovincial Airways photograph.

Aeroplane view showing three of the existing power plants in the Soulanges or Beauharnois district. In the foreground is the Canadian Light and Power, across the river at the dam is the Cedars Rapids Power and Manufacturing, and on the right is the Provincial Light, Heat and Power Company at the foot of the short canal. In the background the Soulanges Canal may be seen running parallel to the river.



Building a draft tube form for the first 50,000 horse-power unit at Beauharnois.

Compagnie Aerienne Franco-Canadienne photograph.

Aeroplane view of the camp at Beauharnois. Not all the buildings are shown here. The building in the centre is the rock crushing and concrete mixing plant. The power-house site is off a short distance to the right.

nature of man's response to his opportunities. There is no longer a seigneur to prescribe for his tenants what will be good for them and for him, but administrators of the nation's wealth are in a comparable position. Mills must grind if Canadians are to find a local market for raw products, if they are to export manufactured goods, and until man discovers the formula for taking energy from exploding atoms, falling water will probably continue to provide the cheapest and best power with which to turn the wheels, just as it did in the days of the Beauharnois seigneurs. They sent power along a spinning shaft and could transmit it no further than the shaft's extremity: we send the power across the country on tenuous aluminium threads and are thus able to distribute it much better—this is our progress.

Men will sow and harvest in the fields; men will dig in the mines; men will cut trees whose growth has been carefully watched by silviculturalists; and the ships in the deep St. Lawrence will move quietly through two master locks at Beauharnois on their way to the sea and the markets of the world, laden with merchandise. The drone of turbines will have replaced the crashing of free waters through unnavigable cascades and Canadians will be busy in their workshops.

Entrance into Almannagja. This steep and rocky road leads into Almannagja, All-men's-rift, at Thingvellir, the site of the ancient Althing or Parliament in Iceland. The rock formation has an interesting geological history. At one time Thingvellir was a broad, flat valley, banked by low hills, behind which mountains were set far back. As a result of a series of volcanic eruptions the plains were covered with streams of molten lava. Deep chasms were formed, while the rugged sides of the two precipices in the picture would indicate that the intervening portion has at some remote period, perhaps when the lava flood was cooling, sunk suddenly down, leaving two sheer rock walls.

Iceland

By JON RAGNAR JOHNSON

DURING the last years the eyes of the world have been directed towards Iceland, a comparatively obscure and little known island in the North Sea. The reason for this sudden universal attention was the celebration during the month of June, 1930, of the millennial of the founding of the Althing or Parliament.

The event attracted 30,000 visitors from all parts of the globe. Felicitations were extended by the principal countries of Europe, the United States, Great Britain and the Dominions. Besides, a great number of presentations were made by various countries, provinces and states, as well as literary, scientific and other private organizations.

Amongst the visitors were several hundred persons of Icelandic birth or origin resident in Canada and the United States. The majority of these pilgrims going to do homage to the land of their ancestors were of the second or third generation born in North America, while some had been born in Iceland and took the opportunity to revisit the land of their fathers.

JON RAGNAR JOHNSON

was born in Winnipeg, of Icelandic parents. He was educated at Winnipeg public schools and the University of Manitoba. In 1926 he graduated with honours from Manitoba Law School. As winner of the Pugsley Scholarship in International Law, Mr. Johnson did post graduate study at Harvard, obtaining the degree of LL.M. He is Editor of th Manitoba Bar News, and aide-de-camp to the Lieutenant-Governor of Manitoba. Mr. Johnson travelled twice to Europe and on each trip spent some time in Iceland.

Icelandic immigration into Canada dates from the early seventies. Between 50 and 60 years ago several hundred families were reduced to abject poverty in Iceland as a result of volcanic eruptions. Angry volcanoes had laid waste entire districts and in some cases destroyed every living thing. Those who were resourceful enough to escape the devastating effects of the streams of molten lava that wrought so much havoc in the country resolved to find new homes in America.

One of the first organized bands of newcomers from Iceland landed in Quebec in 1873 and were heading for Milwaukee where some of their countrymen had already settled. They never reached their destination, however, as they were intercepted by representatives of the Allan Line who made certain negotiations on their behalf and were successful in obtaining grants of land from the Ontario government.

The new settlers were attracted by this offer and soon found themselves near Rosseau in the Muskoka Lake district. After a brief sojourn here they went to Winnipeg and later established a serious settlement in "New Iceland" along the western shores of Lake Winnipeg.

There has not been any organized immigration from Iceland into Canada or the United States for many years, but from the early settlements in Manitoba, these people have spread out to all parts of the North American continent and are to be found engaged in practically every calling, trade or profession.

This immigration may be called the second "invasion" of America by Icelanders. The first one took place in the year 1000 when Leif Ericsson, better known as Leif the Lucky, sailed to the new world. A few years later his countrymen founded a short-lived Icelandic colony in Vinland. The Sagas tell us that the first white man to be born in Vinland was Snorri, the son of Thorfinnur Karlsefni, one of the early colonists.

Those who were visiting the land of the Sagas for the first time, found this rock-ribbed island a place of amazing interest to the traveller, a land of glaciers, volcanoes, geysirs, fertile valleys and beautiful waterfalls.

A scene in the Westmann Islands, just off the mainland. The two earliest settlers in Iceland were Ingolfur and Hjorleifur Arnason. They each brought with them a large retinue of slaves. These were collected mostly in Ireland and were called Westmen, or men of the west. Hjorleifur put a gang of these slaves to work tilling the soil, but he treated them so harshly that they rebelled, killed their master and fled to these islands. Hence they acquired this name. Ingolfur later went there, found the slaves and killed them all, thus avenging his brother's death.

Siglufjord, one of the fishing villages on the east coast of Iceland.

Fishing is the most important industry in Iceland and marine fauna is multifarious. The fully cured Iceland salt fish is in great demand in Mediterranean markets, while a great quantity of half cured salt fish is exported to British markets. The women in the above picture are gathering fish which has been left in the sun to be cured.

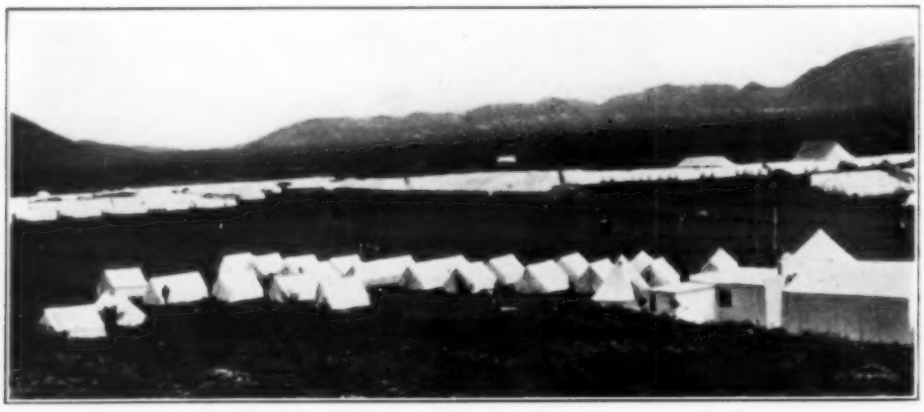
A view in the residential section of Reykjavik, showing how modern and up-to-date the houses appear. Many of them are luxuriously furnished.

The national festival costume of the women of Iceland.

Iceland is situated between 63° 24′ to 66° 33′ north, and from longitude 13° 30′ to 24° 30′ west. It is just south of the Arctic circle, about 550 nautical miles north-west of Scotland, 600 miles west of Norway and 200 east of Greenland. It is considerably larger than Ireland, with an area of about 60,000 square miles. It is deeply indented with bays and fjords on all coasts except the south.

Iceland is essentially a mountainous country with prominent lowlands in the south, divided into cultivated grassland (tun), mowable meadow lands and pasture land. This forms about 15 per cent of the total area, while the rest is chiefly plateaux and tableland, built up of basalts with intercalated beds of sedimentary rocks. A considerable part of the thickness of the Icelandic basalt formation, estimated at about 12,000 to 14,000 feet, is of the pleistocene age, the oldest basalts going back to oligocene times.

There are in Iceland several extinct and active volcanoes or volcanic areas. Twenty-five of these have erupted since the date of the first settlement, some of them several times, making a total of over a hundred eruptions on record. The most celebrated volcano in Iceland and the one most familiar to people of other lands is Mount Hekla which is credited with 22 disturbances within historic times. It rises to an altitude of 4,500 feet above sea level. The greatest devastation on record



A view at Thingvellir, showing a portion of the city of 6,000 tents.

occurred in 1783 by the eruption of Skafta or Laki when the flood of molten lava laid waste farms for miles around and showers of ashes covered the country, in many districts poisoning the water, the grass, and even the air. The amount of hardship caused can be imagined when it is estimated that the lava flood amounted to 400,000,000,000 cubic feet, with about one-fourth more for ashes and scoriae. Professor Bischoff, the German physiologist, calculated that the mass of igneous rock emitted during the eruption exceeded in bulk the cubic contents of Mont Blanc.

Another terrible eruption took place in 1875 when the Askja exploded and pumice and ashes were carried off as far as Norway and Scotland. The most recent eruptions occurred in 1921 and 1926, but both were of a minor nature.

There are several volcanic formations, known as lava domes, which are said to exist only in Iceland and some of the South Sea Islands.

Closely connected with volcanoes and volcanic activity are the hot or thermal springs, which are really fountains of boiling or tepid water. They are scattered all over the country, sometimes singly, but more frequently in groups, and are to be found at every altitude, from the icefields 4,500 feet above sea level, down to the coast, where some are visible only at low tide. Near the volcanic zones there are a number of mud-volcanoes emitting fumes of sul-

The upphlut, or ordinary everyday costume.

Hornbjarg, a cape in the northern part of Iceland. It lies within the Arctic circle, and is the most northerly part of the island.

Sheep raising is the second largest industry in Iceland. The breed is the Ovis brachyura borealis pall, and in summer before the autumn killing begins, they number something like a million, of which about half are killed annually.

Taken on board a fishing trawler. Recently great innovations have been made in the mode of catching and preparing fish for the market. The quick-freezing method has been introduced so that within a few minutes of landing the fish it is cleaned and prepared on the boat and then placed in refrigeration, where it keeps indefinitely. The old method was to catch the fish and leave it lying on the boats and then bring it to market sometimes after it began to spoil.

Gryla, one of the smaller geysirs. This geysir spouts regularly every two hours, each emission lasting several minutes. A spout witnessed by the writer was heralded by several dull, deep-seated thuds, resembling subterranean thunder. A dome of water sprang into the air, accompanied by a roaring burst of steam, to an elevation of about 40 feet.

An Icelandic girl wearing a native costume. A close examination of the ornaments will reveal some filigree silver or gold work. Also some embroidery on the vest. The blouse and apron are usually of white silk, while the skirt and vest are of dark material, usually black.

phurated hydrogen, hydrogen and carbonic acid gas. But in other parts the thermal springs are mostly alkaline, the chief constituent of the gases being nitrogen.

The best known hot spring in Iceland is of course the Great Geysir (pronounced gay-sir, and not guy-zer). Its eruptions have been known to attain a height of nearly 200 feet. Like most other hot springs in the country it is intermittently eruptive and is not now active. At present the most powerful springs are Nordurhver in Reykjarhverfi, Smidur near the Great Geysir and Gryla in Olfus. Last summer the writer saw the Gryla spout to a height of about 40 feet.

Earthquakes are frequent in Iceland and at times have caused great damage to property and livestock. As a result of some earthquakes, lakes disappear altogether while some are transferred elsewhere and hot springs often appear where none existed before. In 1924, as a result of a volcanic explosion at Krisuvik, the largest mud cauldron in Iceland was formed.

In contrast to the volcanoes and hot springs, there are icefields or mountains covered with perpetual snow and ice that cover about 12 per cent of the total area of the island. The largest glacier or

A view in the residential area of Reykjavik, showing the lake.

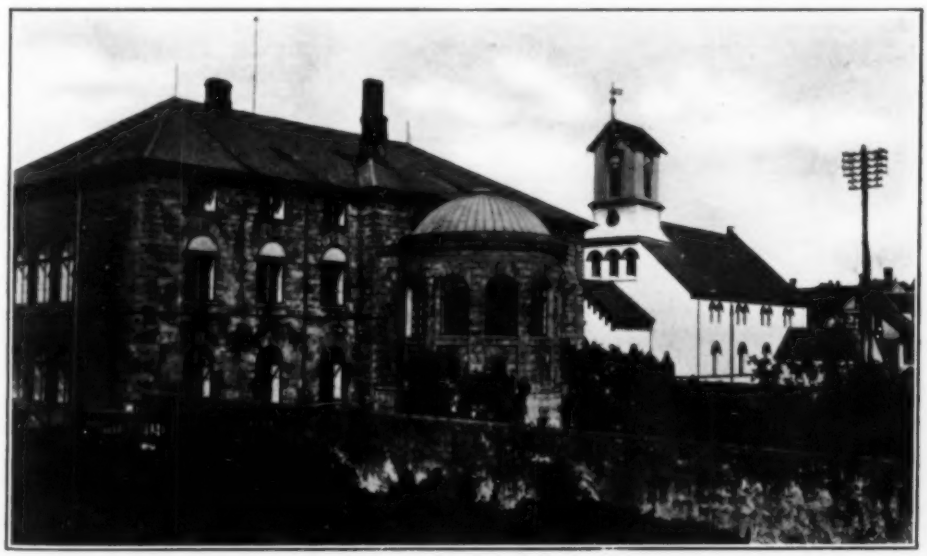
Jokull is the Vatnajokull in the south-east, while in the interior we find Hofsjokull and Langajokull, besides several ice-capped glaciers near the coast. It is estimated that during the glacial period the thickness of the ice near Lake Myvatn was between 1,800 and 2,500 feet.

Although it is alleged that there was an abundance of trees in Iceland at the time of the early colonization, there are at present very few trees and no forests whatever. This scarcity is blamed on the wet climate and the nature of the soil, but naturalists tell us that the wooded lowlands were reduced over a period of centuries as a result of reckless waste and sheep grazing. A system of reforestation is now in progress.

Vegetation is not luxuriant although the grass is of very good quality. There are some 400 species of wild phaneroganus and vascular cryptoganus. In the gardens of Reykjavik are to be found an abundance of home-grown roses, gladioli, tulips and carnations.

There is to be found in the mountainous parts of Iceland the edible Iceland moss which was formerly gathered and used as a

Asa Hanson, a little Icelandic dancing girl.



The Parliament House and Cathedral in Reykjavik.

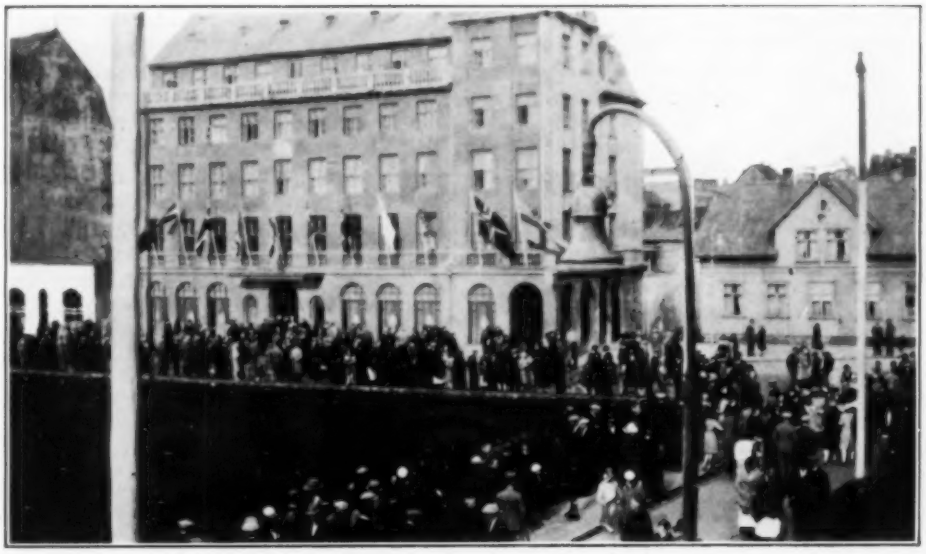
A panorama of Thingvellir—the Plains of the Thing—where the Althing was established in A.D. 930, and where it sat continuously till 1800. Since 1843 it has met in Reykjavik. On the right is the ancient vicarage, while the mountain in the background is the Armansfell.

wholesome article of food. It is now used only for medicinal purposes. Marine flora grows in large quantities along the coast and is used as fodder. At one time dulse (sol) was gathered and used for human consumption, as it is to-day in the Bay of Fundy. Barley and rye are grown in the south. A form of rye called Iceland corn (elymus arenarius) yields a grain suitable for bread.

The only indigenous wild mammal in Iceland is the fox, although reindeer brought from Norway in 1771 live in a wild state in the interior. Polar bears do not live in Iceland but are sometimes carried there on floes of ice, while seals and whales are to be found along the coast.

About a hundred species of birds nest on the island. About half of these are

A scene in one of the ice fields.



The Hotel Borg in Reykjavik, a very fashionable and modern hotel. One of Reykjavik's smart night clubs is to be found here.

aquatic and include the gull, puffin, golden eye, (claugula islandica), Brunnich's guillemot, common tern and eiderduck. The last-named is protected by law and yields about 7,000 pounds of down annually. Summer birds include the golden plover and ringed plover, redwing, whimbrel, redshank, wheatear and white wagtail; while winter birds include the ptarmigan, falcon, swan and sea eagle.

There has not been a very extensive mining development in Iceland although the country is rich in natural resources.

A scene at Seydisfjord, one of the fishing villages on the east coast of Iceland.

There is a calcereous spar mine which yields a very superior kind of spar known as "Iceland spar", not obtainable elsewhere. Sulphur mines are found in various places. Developments are expected in iron, copper, and gold.

Iceland's water power is estimated at 4,000,000 horse power, which is probably more comparatively than exists in any other country. Warm water from hot springs has been an important source of energy. It is used for heating houses, for cooking and for warming the soil where vegetables and flowers are grown. Many farmers in Iceland whose houses lie near natural hot springs have used these springs for the heating of their houses. In some places one finds ovens built in the ground kept perpetually warm by a nearby spring.

There are no railways in Iceland and up to the end of last century all transportation was effected by ponies. Road making has progressed in recent years, however, and at the present time the motor car traverses the entire country. Most motor roads are macadamized. As the chief settlements in Iceland are coast towns, a great deal of travelling is still done by steamers which make regular trips around the coast.

Air traffic has made rapid strides recently. In 1928, the Flugfelag Islands (The Aeronautical Society of Iceland) was founded and a four passenger monoplane was engaged for the transportation of passengers between Reykjavik and various points on the coast. In 1929, two four-passenger sea-planes covered a total of 36,000 miles and carried 1,100 passengers, besides considerable mail. In the many plans and discussions for the establishment of an air-line between Europe and America, Iceland has been mentioned as an important halting-place because of its strategic position in the North Atlantic.

From a geological standpoint, as well as an historical one, the spot in Iceland which stands pre-eminent is Thingvellir,

Skogafoss (200 feet high).

or the Plains of the Thing, being the site of the ancient Althing or Parliament. It is a slightly undulating plain, about five miles long by three wide. At the south there is the extensive island-studded Lake Thingvallavatn, while at the north are a series of lofty mountains, many of them old volcanoes. The entire surface is of lava which has been deposited over a period of centuries from eruptions from these volcanoes. On the east and west sides of Thingvellir there

An ancient farmstead.

are two lines of precipices, whose rugged sides would indicate that the intervening plain has at some remote period, probably as a result of a violent earthquake, sunk suddenly down, leaving on each side sheer rock walls more than 100 feet high. These are called the Almannagja and the Hrafnagja and they run almost parallel for several miles.

Thingvellir is everywhere intersected by rifts and fissures, some of which extend to a depth of 50 feet, the lower half often being filled with deep blue, transparent water, formed by subterranean streams, fed by the ice waters of Langajokull (Long Glacier) and flowing to the south-west into Lake Thingvallavatn.

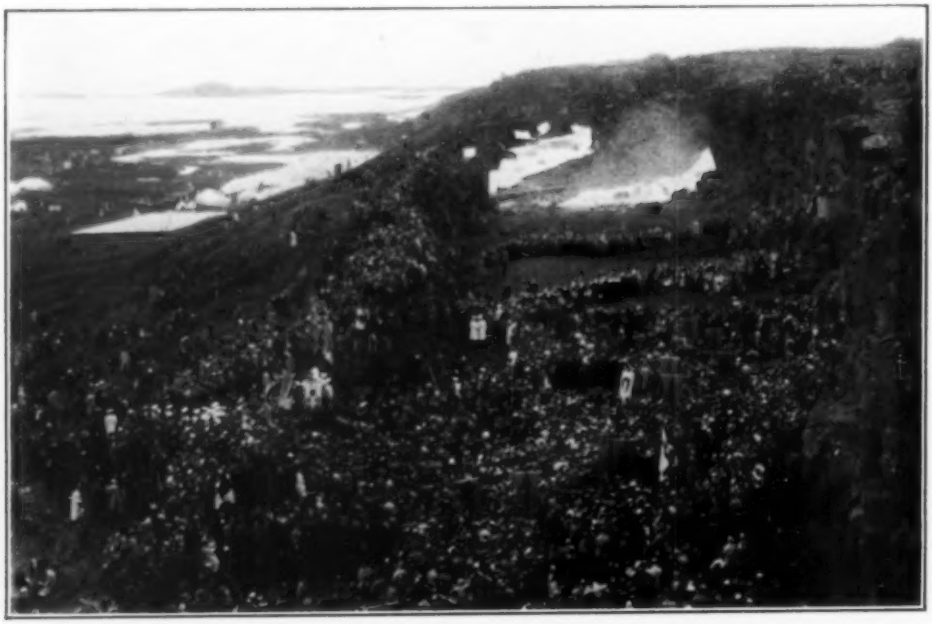
The place of meeting of the ancient Althing is to be found at the western extremity of the Almannagja, near the edge of the lake and within sight of the Oxarafoss, a sparkling waterfall which drops over the cliffs and runs through the Almannagja. Along the banks of this river are to be found the ruins of many of the temporary booths that were built by the old chieftans who attended the sessions of the Althing. These booths were built up of turf and stone and covered with vadmal or homespun.

To accommodate the 30,000 people who attended the millennial celebration in June, a colony of tents was built at Thingvellir, there being some 6,000 tents in all. The King and Queen of Denmark and Iceland were housed in a specially constructed building while the Crown

The opening of the ceremonies. Bishop Jon Helgason conducting divine service.

Prince Gustave Adolph of Sweden, was a guest at the only permanent dwelling in the vicinity, the ancient vicarage. Special quarters were provided for official delegates while in a monster frame and canvas building accommodating some 500 guests, various state banquets and luncheons were held.

To take care of any "business" that might be transacted during the three



A portion of the immense crowds at Thingvellir standing in Almannagja. On the right is Bishop Helgason standing in the pulpit built in the rock wall of Almannagja. In the distance is the mist of Oxarafoss, while on the left is the immense platform used for concerts, gymnastic displays, dancing, etc. At the extreme left is Lake Thingvallavatn.

A group of Icelandic saddle ponies. Prior to the advent of the motor car, ponies were practically the only means of inland communication and transport. These ponies, often only 12 or 13 hands high, have been praised by nearly all tourists for their surefootedness, sagacity, friendliness and endurance.

days of the celebration at Thingvellir, a "business section" appeared in the downtown section of this city of tents. Here one found stores to provide needs of all kinds, a post office where souvenir stamps were sold in millions, a branch of the National Bank of Iceland, telegraph and telephone offices, tourist agencies, offices of the daily papers, restaurants and an hospital.

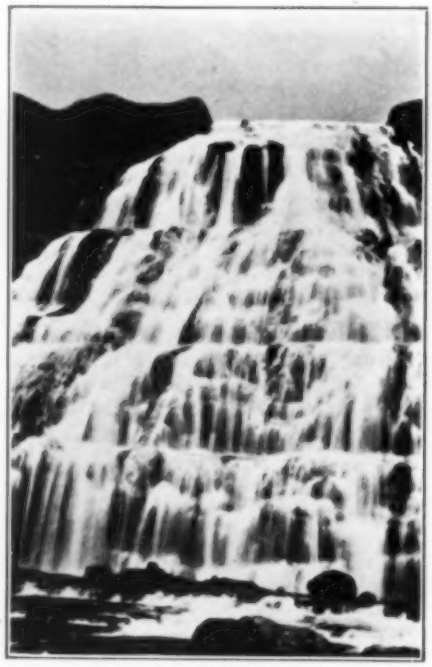
The capital of Iceland is Reykjavik, which is situated on the coast, as are indeed all towns in the island, for there is very little settlement inland and this consists principally of sheep ranches or small farms, together with a smattering

A view of the business section of Reykjavik. In the foreground is the statue of Jon Sigurdson, the great Icelandic patriot. A replica of this statue stands in front of the Legislative Building, Winnipeg. The tall building at the right is the office building of the Icelandic Steamship Company. On the extreme left is the Cathedral.

The midnight sun in Reykjavik.

of creameries, woollen mills and factories. Reykjavik has a population of about 26,000, or about one-fourth of the total population of the country. It is a busy, thriving, commercial sea-port.

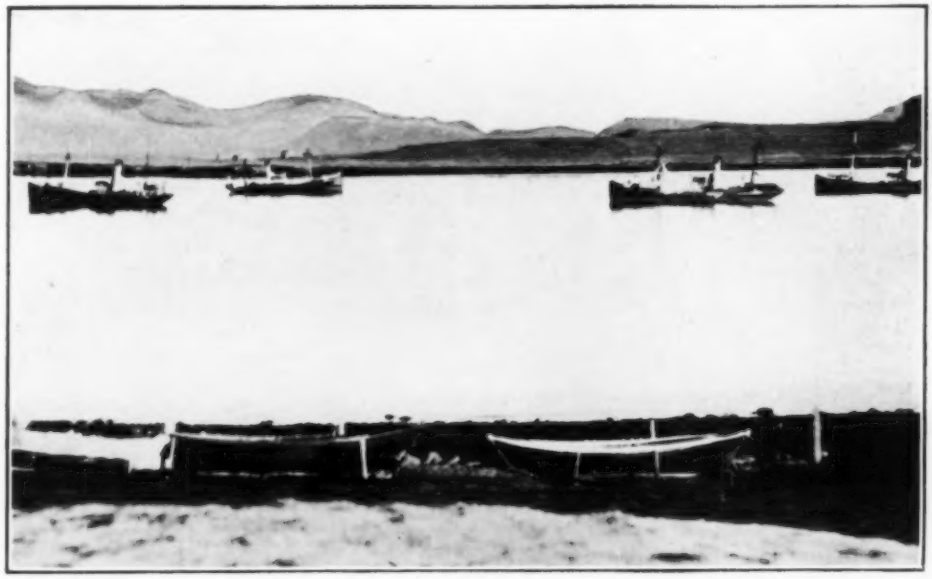
A magnificent harbour, recently improved at a cost exceeding $2,000,000, adorns the waterfront. In it are to be found vessels from all parts of the world. The Icelanders have for many centuries been good sailors. During the Great War when communication with European countries became difficult and dangerous, a regular trade was carried on with America by the fleet of the Icelandic Steamship Company, but these voyages were discontinued upon the restoration of peace. The Company now keeps up a regular communication between Iceland on the one hand, and Denmark, Great Britain and Hamburg on the other. The Company's vessels are called after the various falls in Iceland, "Gullfoss," "Godafoss," "Bruarfoss," "Selfoss" and "Dettifoss."



An Icelandic waterfall, called Dynjandi.

Reykjavik is situated in the south-west and is the site of the home of the first settler, Ingolfur Arnason, a member of a noble family in Norway, at the time of the oppressions of Harald the Fair-haired, and came to Iceland in 874 A.D. Here he found a natural harbour or inlet (vik) and near-by were a series of hot springs (reykir). So he called the place Reykjavik (Smoky Harbour).

After more than 1,000 years the vapour from the same hot springs is to be seen in the capital and modern engineers plan to centrally heat all the buildings



A group of Icelandic fishing trawlers.

in Reykjavik from these springs. Certain public buildings are already so heated. The springs were for many years used by poorer women as a laundry.

Reykjavik has all the appearance and atmosphere of a modern western city, the fast moving vehicular traffic on its labyrinthian streets being but one of the signs of its activity. It possesses all the needs and comforts of modern civilization. A network of telephones and cable connections link it with the outer world, smart shops adorn the business streets, three banks provide financial service, four hotels take care of visitors, while there are two moving picture houses (where English talkies have been installed), a theatre and two night clubs, where one hears up-to-the-minute jazz music. There is an athletic park where games of all kinds are played, particular emphasis being laid on glima, the national sport of the country, Association football and gymnastics. Besides, there are numerous tennis courts, golf courses and gymnasiums.

A traveller on an Icelandic pony.

The glima is the national sport of Iceland and has been known there since the time of the earliest settlement. It is a form of wrestling but differs from any wrestling found elsewhere. Each contender has a harness consisting of a strap drawn tightly around the waist, and joined to two straps each around the upper part of the thighs.

Upon meeting in the ring they face each other and shake hands. They then take grips, each having his right hand behind and above the left thigh bone of his opponent, and the left hand on his right hip joint. This is the only lawful grip.

The match consists of manoeuvres or tricks and counter moves used by the participants. It is really a contest of scientific tripping. Smiting or pushing

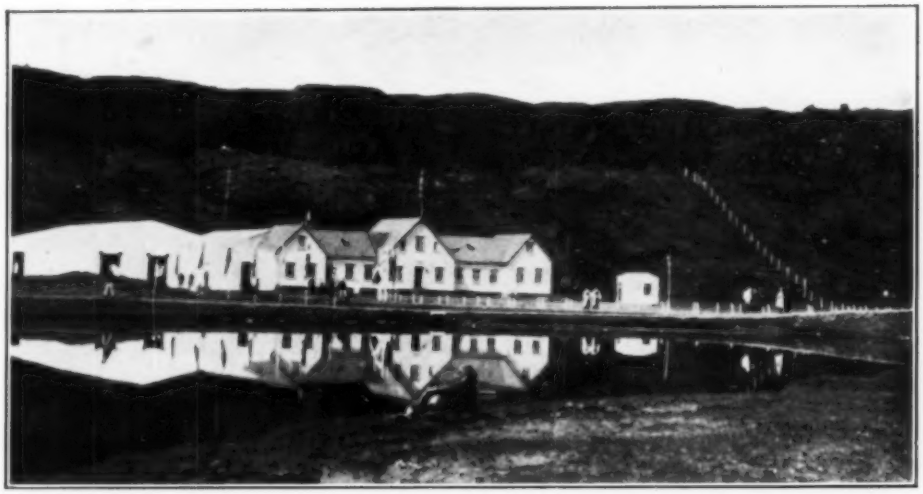
A hotel in the mountains. At this place we discovered an excellent cuisine, with up-to-date service.

with the hands is prohibited, and the tricks are performed with or by means of swift and agile movements of the foot, knee or hip, under a strict code of rules.

The contestant who first touches the ground with any part of his body between knee and elbow, loses the bout. If both fall to the ground at the same time it is called a "brother fall," simiar to the "dogfall" in Cumberland and Westmoreland wrestling.

No two wrestling bouts or glimas are exactly alike, even though the tricks and counter-moves are the same. The action

The Library and Museum in Reykjavik.



The building at Thingvellir which housed the visiting delegates. The canvas covered structure at the left was called Valholl, and here several state banquets and luncheons were held.

is so swift that a wrestler cannot anticipate the mode of attack. He must always be on the alert. His nimbleness, agility, judgment and quickness of decision are thus in constant demand during a bout. The wrestlers shake hands at parting.

The National University, situated in Reykjavik, provides instruction in the four principal branches of philosophy, theology, medicine and law. There is also a college, high and public schools and several ladies' finishing schools. Icelandic students are to be found in several of the larger University centers of Europe and America doing post-graduate work in various fields.

A place of particular interest in the capital is the building containing the National Library, the Archives, the Archaeological Museum and the Natural History Museum, all being housed under a single roof. The Library consists of about 125,000 volumes and 8,000 manuscripts. The Archaeological Museum possesses over 12,000 objects of various

An Icelandic farm. The present century has witnessed great progress in farming, both as to conditions, the area of hay fields under cultivation, and the introduction of modern machinery for agricultural purposes.

degrees of antiquity, while the Natural History Museum contains specimens of most Icelandic animals, stones, plants, etc. The people may well be proud of its director, Dr. Bjarni Saemundsson, who is an authority on fish and fisheries. He has written several theses on his oceanic investigations and Icelandic natural history, in four languages, Icelandic, English, Danish and German.

There is ample evidence of the artistic qualities of the Icelanders to be found in the Sculpture Galley of Einar Jonsson and in the National Art Galley. Einar Jonsson is the greatest Icelandic sculptor now living. Several monuments by him stand in various public squares in Reykjavik while his statue of Thorfinnur Karlsefni, the first white settler in America, was unveiled in Fairmount Park, Philadelphia, in 1920. Thorvaldsen, who spent most of his time in Copenhagen and Rome, was an Icelander.

The art of painting was very little cultivated in Iceland until the beginning of the present century. In 1928 paintings by Icelandic artists were exhibited in Copenhagen, Berlin, Hamburg, Lubeck, Paris and elsewhere, and many of them were highly praised by art critics.

Characteristic Icelandic arts are weaving, xylography and silver work. Tapestry weaving was in vogue in olden times and is now being revived. Festival costumes worn by ladies were often richly embroidered and ornamented with gold and silver. Wood carving has been practiced in Iceland from the earliest times for the purpose of decorating temples, churches, articles of furniture, etc. One often finds beautiful objects carved of whalebone and ivory. Silver work consists principally of filigree, which is used in bracelets, pendants, brooches, necklaces and sometimes watch fobs.

A group of Icelandic ladies in Winnipeg, wearing the national dress. (The lady at the reader's extreme left, holding the Union Jack, is the author's mother.) This picture was taken at a pageant held at the time of the British Medical Association meeting in Winnipeg, in August, 1930.

An increasing interest has been taken in the stage, and a national theatre is to be erected in the near future. For this purpose a fund is being established by the imposition of a tax on all amusements and entertainments. Great progress has been made in the last 50 years in the musical life of the country. There has

Isafjord, another coast town. The snow in the mountain in the background comes down almost to the level of the sea.

Gullfoss (250,000 horse-power). Many impartial travellers have pronounced the Golden Falls of Iceland to possess more natural beauty than the mighty Niagara of America.

been created a distinct form of Icelandic song composition. There are only two native musical instruments, both of which are very primitive. They consist of oblong boxes, one a form of the fiddle, having two to four strings, the other the so-called "langspil" with three strings. Both these instruments were placed on a table and played with a bow. The melody was played on one string, and the others were scraped with the bow to produce harmonic sounds. Nowadays every known musical instrument, even the saxophone, is extensively used.

Visitors to Iceland are equally delighted with the cultural development in a country so remote from the centres of civilization, and the natural charm and good manners of the Icelander. These, together with an unbounded hospitality, prevail everywhere, and are the dominating characteristics of this hardy race. It is not uncommon to find an inhabitant who speaks several languages and is well versed in many literary, social, economic or scientific subjects.

The statue of Ingolfur Arnason, the first settler in Iceland. An example of Icelandic art, by the sculptor, Einar Jonsson.

Three little Icelandic maidens wearing the national dress. The ornaments are of filigree and gold embroidery.

There are said to be relatively more books, magazines and papers published in Iceland than in any other country. It is this love of reading, research and learning, that has prevented the Icelandic farmer from becoming a peasant and the fisherman a common tar.

Although Reykjavik is in every sense a thoroughly modern and busy city, its inhabitants seem to find plenty of time in which to enjoy the better things of life. In spite of the unparalleled prosperity of the country, which in late years has been so great that the unemployment problem is unknown, the Icelander has remained unspoiled and has maintained a high degree of culture, virtue, virility and intelligence.

Garibaldi Park

By RUTH D. GOLMAN

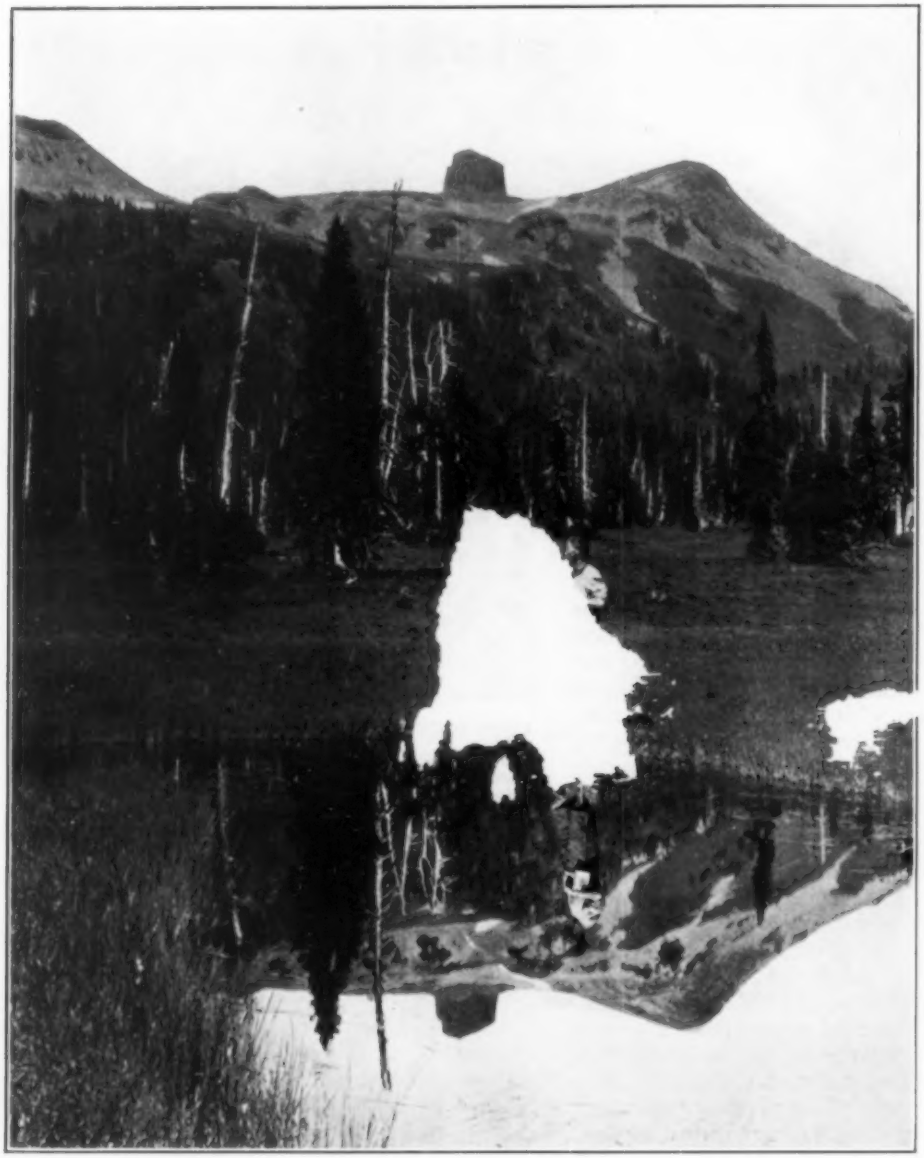
IN THESE modern days of ever-increasing speed, of jazz, and of jaded nerves, the need and desire for the healing quiet of the out-doors becomes more and more apparent. Hiking and camping have both grown in favour in latter years, as a result of humanity's urge, unconscious though it may be, to find rest and peace with which to balance the wear and tear of the times. To meet this need perhaps no province in Canada is better situated than British Columbia. A tourist once said British Columbia is like a cool hand on a fevered brow" —a statement which combines both sentiment and truth, for here majestic mountains brood over sunlit valleys, and crystal streams sing their way to the sea, which answers with a crooning lullaby of waves swinging up on silver sands. Summer breezes, whispering through forest and field, bear the healing scent of cedar and fir with which the province abounds.

RUTH D. GOLMAN

who is the wife of the Secretary of the British Columbia Mountaineering Club, was born in Clifton, England, and at an early age came to Canada with her parents, who pioneered for several years in Northern Saskatchewan. Mrs. Golman was educated at Havergal Ladies' College, (now Rupertsland College), Winnipeg, and is the author of several articles on the out-of-doors.

Amongst the many gems of nature found in this setting, British Columbia cherishes her own Alpine Park — Garibaldi, an altogether delightful example of mountain scenery Here the magic of blossoming meadows and dreaming lakes, the challenging lure of mountain winds whispering down from remote and snowy heights, and the serene mystery of stars which bloom like silver buds in the fields of heaven, combine to weave a spell of enchantment over all fortunate enough to come under its influence. The fact that this delightful territory is but a day's journey north-west of Vancouver adds to its charm. The sail up beautiful Howe Sound to Squamish is one of great interest and beauty, and when one boards the train at Squamish it is to enter rugged scenery, where thundering waters froth and foam their way through wild gorges, and past the forest-shod feet of lofty mountains. The journey to Daisy Lake Station, which is the main entrance to the Park, is but 23 miles, but every mile is packed with absorbing charm. At this station pack and saddle horses may be obtained if one desires, for the 13-mile trip into the wonderland of Garibaldi Park—the Black Tusk Meadows, which lie at approximately 6,000 feet altitude. It is in these meadows that many out-door clubs and societies find ideal sites for annual summer camps, amongst them being the British Columbia Mountaineering Club. In 1913 a party of members of this Club, under the leadership of the late Wm. J. Gray, blazed the first trail into the Black Tusk Meadows, and at the entrance to this Alpine garden can be seen these words written in pencil upon one of a group of firs "The last blaze. Thank God the task is done." From that time the Club has spent much money and time in exploring and advertising Garibaldi, and it is through their untiring efforts that the Government has set apart this beautiful area, covering approximately 450 square miles, as a park, — something for which future generations will live to be grateful.

It is difficult to find adequate words with which to describe this mountain playground, for, as befits such an enchanting area, it lends itself to the inclination of almost any lover of nature, so varied are its charms. For those who prefer less strenuous recreation than climbing there are wide, winding valleys to roam in at will, where little lakes, amber, amethyst and jade, lie dreaming in the sun, shy flowers tip-toeing close to their edges to peep at their reflection in the clear depths. Perchance botany is the source of interest, if so, then Garibaldi is indeed a "land o' dreams come true", for the meadows and slopes are massed with glowing, fragrant blossoms. Rose



A silent watcher beside one of the many jewel-like lakes.

and ivory heather, golden-eyed mountain asters, lupines of tenderest blue, graceful valerian with blooms like tufts of waxen lace, bold scarlet paint-brush, golden splashes of arnica, all mass themselves in riotous profusion, and blend with the purple-pink of fire-weed and the majenta rose of mimulus in a truly astonishing harmony of colour. Fragile rein orchids raise tiny perfumed, ivory-belled turrets, and it seems a crime to crush their pure beauty beneath nailed boots. Sparkling streams, escaping from the restricting bonds of austere ice-fields far up the mountain-side, laugh their way down the green slopes in joyous abandon, and, smiling in sympathy, the little yellow mimulii, shorter in stature than their rosy sisters, crowd over the grey-brown rocks and dip their bonnie faces in the cool waters. Higher up, beyond whispering groups of fir and

The author and her husband on a peak overlooking Garibaldi Lake.

hemlock, which cast olive shadows on the sunny slopes, the tiny mountain phlox spreads itself in contentment over grey patches of sun-warmed rock; while on more remote ridges and heights, nearer the snow-line, other, more rare Alpine specimens bloom in dignified seclusion befitting their aristocracy.

It is under the spell of such a land as this, ringed in with lofty, gleaming peaks, and mighty glaciers, that town-weary folk break away from the routine of office and home, and blossom forth as artists, poets, and philosophers, for it is not possible to live amongst such beauty and not respond in some measure, according to tendencies or talents. The artist in particular finds shades of colour in mountain, lake, and valley that fill his heart with delight and his fingers with inspiration.

Naturally the main object and pastime of many who find pleasure and peace in

British Columbia Mountaineering Club party on top of Mount Garibaldi.

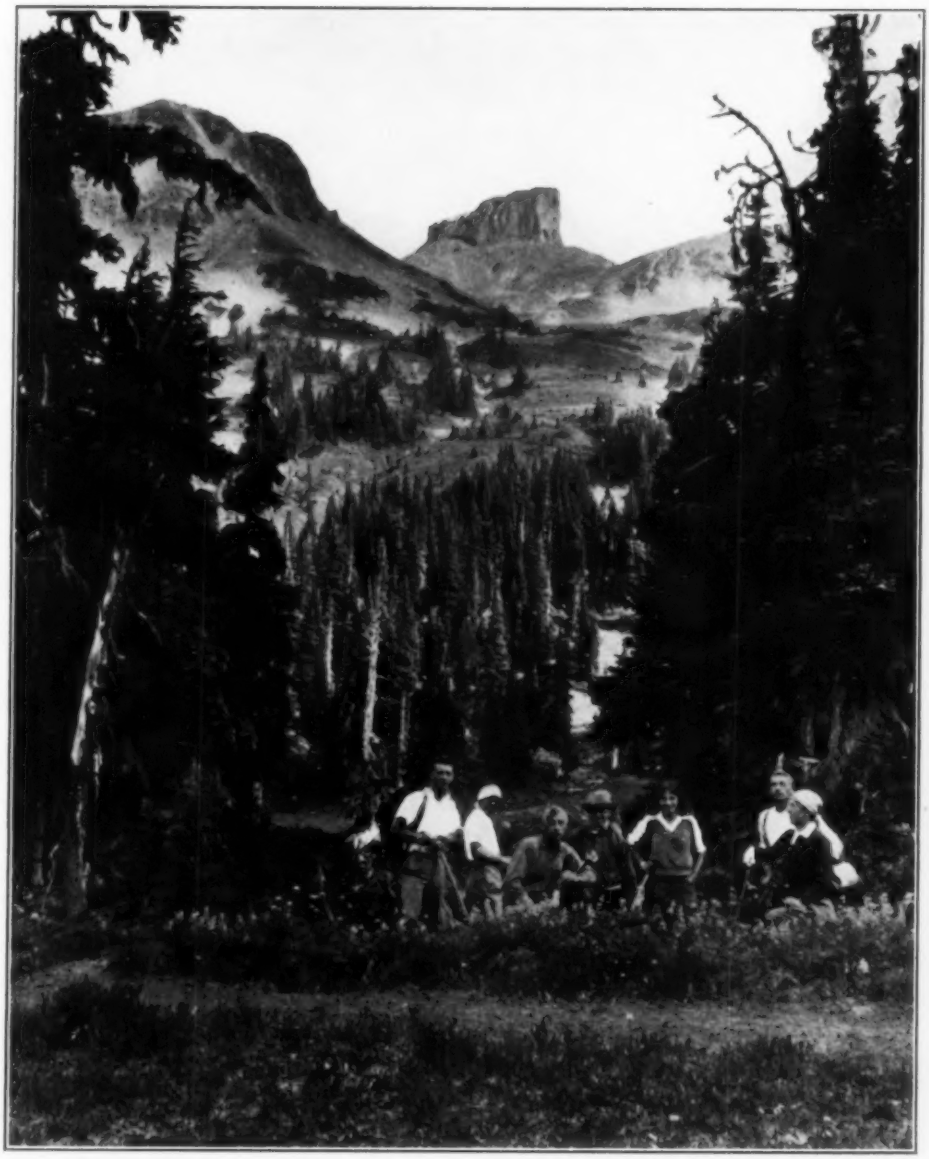
By the whispering waters of Lake Garibaldi. Glacial Pikes rising out of Sentinel Glacier in the distance. Red Mountain in right foreground.

The flower-starred slopes of the Park. Mount Garibaldi in background.

Nature's flower garden. One of many fields of Alpine blooms in Garibaldi Park.

A cool dip in the rushing waters of Mimulus Creek.

Garibaldi Park is that of climbing, added interest being given this pursuit by the fact that this Park is the only one in Canada possessing volcanic mountains, though none of the craters are now active Garibaldi Lake itself was formed by lava flow from Red Mountain which dammed Rubble Creek, and, overflowing into a basin lower down formed also what is known as Lesser Garibaldi Lake. Both these lakes have subterranean drainage, and reappear some 1,500 feet lower at the foot of a cliff which is well-named "The Barrier" and which is the objective of at least one climbing trip. The major expedition is, of course, Mount Garibaldi, and from its peak a panorama of exceeding beauty unfolds itself. To the south are to be seen the mountains near Vancouver; the Lions, Crown and the Camel, while the gleaming stretches of Howe Sound spread



In the valleys of Garibaldi Park. Black Tusk in the distance.

like liquid silver in the distance far below, the tiny town of Squamish nestling at its point, distance giving it an unreal, elfin appearance. Rising, blue-veined out of the west, tower the majestic crests of the Tantulus Range, the sunlight glinting in patches on miles of mighty glacier and sweeping snowfield; crevasse and serac outlined in misty mauve and blue. To the north, and far below, lies Garibaldi Lake, pale, gleaming jade in a setting of live fir beyond which rises the somber hood of the Black Tusk. This latter mountain is well-named, standing out, as it does, against the sky and embedded in a veritable "gum" of scree or loose stones and gravel. It is slowly disintegrating under the forces of ageless storm and sun, and one can pick out blocks and slabs of basalt on its peak, like a child picking out the parts of a puzzle. Firm

Black Tusk, Garibaldi Park. ***Altitude 7,620 feet.***

though the core of this mountain may yet be it is nevertheless slowly swinging back on its cycle, returning once more to earth, for the green sward of the meadows below is gradually creeping higher and higher up its black and barren slopes,—a silent but eloquent testimony to the ultimate victory of life over death.

So many and varied are the peaks and pinnacles of Garibaldi Park that it is impossible to describe them all. Helmet Mountain, Castle Towers, and numerous other peaks offer trips of great interest while a climb which combines both ease and exquisite charm is that of Panorama Ridge, which is also well-named. One mounts by easy ridges until at the top a view hard to surpass meets the eye. Garibaldi Lake gleaming, jewel-like, in the sun, whispers homage at the feet of serene glaciers which sweep like royal robes from the majestic shoulders of

Crossing snow bridge near peak, altitude 8,830 feet, and just below famous Garibaldi bergschrund.

mountain giants. Crevasse, glacier, wind-swept peak, laughing, flowery valleys and gem-like lakes, combine in breath-taking beauty and lead the eye to far blue distances where yet more peaks, elusive and ethereal, raise beckoning spires.

To visit the Cinder Cone, also a volcanic core, is to find another source of interest. Apart from the formation the colouring of this cone is noticeable, shading as it does in places from ochre to amethyst and wine colour.

Garibaldi Park may be safely counted among Canada's most priceless possessions for it is a miniature Switzerland—a mountain paradise where all who seek the soothing hand of nature may find peace and health, recreation and inspiration. We hear a lot about boosting "Made - in - Canada" goods — which is

A climbing party on Castle Towers.

right, but let us not forget to boost our wonderful "Made-in-Canada" scenery, for we have plenty of it to be proud of. Our mountains and our forests are valuable possessions, not only from a material angle but from the standpoint of the message they breathe to those who truly love them. Who among mountaineers has not sensed the comradeship and friendliness of smiling fields of Alpine flowers? Who has not been impressed by the gleaming purity of vast snowfields, and who, in the shadow of far-flung peaks and lofty crags, has not felt a deep sense of peace and freedom though mixed with awe and wonder at such majesty? It is then that the bickerings of humanity seem small and petty indeed. It is then that we realize that after all the only worth-while things in life are those revealed to us by the mighty hills, — Comradeship, purity, honour, peace and freedom, out of which comes forth unity and all which that means. This is the message of the mountains to all who have ears to hear— these are the things which, to be worthy of our glorious heritage we have to strive to bring down from the heights into the valleys of daily existence, for they stand for the highest ideals of our country,— Honour, Peace and Freedom!

Voice of the Wilderness

By H. U. Green

THE return of summer days invariably leads the investigating mind of the nature lover to speculate the possibilities of the unknown which is always beyond. The smoke of last year's camp fires lingers enticingly in the nostrils and memories of other blissful days in the great outdoors race through the mind in kaleidoscopic array, changing and colourful. Memories of a camp clearing at night when the sky seemed powdered with stars spangling the wide expanse on infinity. The remembrance of some moss-grown log within the forest depths where you sat and listened to the hum of insect life while the rustling of foliage foretold a scampering squirrel or the dainty tread of a ruffed grouse. An ever-changing panorama passes mistily before the eyes accompanied by the phantom twittering of warblers, the lonely call of a loon and the raucous chattering of marsh birds at night. Indeed, the Red Gods call insistently with a beckoning gesture inviting us to participate in what nature offers of her benevolence, and we hasten to accept lest the days pass by heedless of the request.

H. U. GREEN

is a lover and writer of Canadian out-of-doors whose nature study, "The Eater of Wood" appeared in the December, 1930, issue.

It was early June when our party of four left Dauphin, Manitoba, with two automobiles laden with camp equipment to explore the heart of the Riding Mountain beyond the beaten track and avail ourselves of the opportunity to study the animal and bird life for which it is justly famed. Thus did we heed the Red Gods' call.

Situated in central Manitoba, the highest elevation about 2,200 feet above sea level, the Riding Mountain rises abruptly above the fertile plains to the east and north in a series of benches marking the ancient water levels of Lake Agassiz. The high escarpments are visible for many miles. To the south, and to the west, the mountain gradually merges into the surrounding country through a gentle slope in places hardly discernible to the eye. For many years the area, comprising 690,000 acres of meadow, lake and timberland was set aside as a Dominion Forest Reserve. It has recently, however, become a National Park. Moose browse in the willowed swamp lands. Deer of two species inhabit the thick brush. Many of the lakes teem with fish awaiting the lure of the angler. Even the cautious beaver may be heard in the watered meadows striking the surface with flattened tail as a warning to its mates of your approach. Birds sing unceasingly amid the underbrush and branches of the forest growth, awaiting identification and study. In the marshes waterfowl chatter, and on the wooded slopes elk sound their warning "calls" as they see you in the distance or scent your presence.

Kenneth Fuller Lee and Thelda Lee had motored from Augusta, Maine, to photograph and study the denizens of the Mountain. Mr. Lee is well known as a nature writer and photographer of wild life. The writer and his son comprised the additional personnel of the expedition.

Leaving Dauphin for this fairyland one travels over roads of questionable comfort until the northern boundary of the preserve is reached. This latter fact is proclaimed by a large sign which further warns the careless camper to extinguish his cooking fire. Seven miles of uphill travel on a good gravel grade through thick stands of poplar and spruce brings you to the divide at the height of land. The road continues to Clear Lake, a pretty summer resort a short distance beyond. When 32 miles from Dauphin, and nine miles within the mountain, we left the road and took to the bush on a twisting woodland trail. It was quite obvious that automobiles had never before covered its surface. Nevertheless, after much hazardous travelling, during which time the cars were badly wracked and scratched, we arrived close to the site previously se-

The crumbling remains of many ancient camps still stand in remote spots within the Riding Mountain. Long ago Indians built this wick-i-up leaving the skeleton for the use of other nomads who might pass that way. An axe head rusty with age was found nearby bearing the stamp of the Hudson's Bay Company.

A comfortable camp in a spruce clearing is a certain anodyne for jaded nerves. Camp cooking, too, is sure to please, for appetites are keen in the clear upland air. The Riding Mountain affords many beautiful locations for the camper who seeks the solitude of the forest.

lected for a base camp. Strenuous effort was necessary to carry the equipment the balance of the distance. But at last it was accomplished and our tents erected on the edge of a giant spruce bluff overlooking the wooded banks of Kennice Creek. It was indeed a beautiful location, surrounded by deep forest growth, except to the south, where through a vista in the trees the southern bank of the creek was visible gently sweeping towards the heights above.

panied by the soughing monotone of a zephyr breeze playing in the topmost branches of the trees.

Morning comes early in the north woods, especially when slumbers are bedevilled by the noises of the wild. A woodfrog "peeped" insistently at dawn until located one evening on a rotted log nearby. He was a tiny fellow scarcely larger than a 10-cent piece. After considerable trouble I induced him to pose on my hand to be photographed. After-

Even the smallest frog has something to say which it does in no uncertain tones. The volume of sound that this woodland dwarf can produce is amazing and oft-times disconcerting to a sleepy listener.

During our first meal expected visitors arrived. Two whisky-jacks (Canada Jays) had found us out and thereafter pestered us continually. Nothing in the way of food was safe from these marauders. Not content with garbage, they purloined anything eatable left about during own temporary absence.

As the last rays of the setting sun glinted the horizon we sought our beds of fragrant spruce-boughs glad of a respite from exhausting labour. The plaintive notes of a white-throated sparrow perched high on the dead snag of a poplar sang our lullaby, accom-

wards he was removed to a distant abode where his vocal accomplishments could be less distinctly heard. Crows, too, bickered over the remains of camp garbage, returning each morning at sun-up with alarm clock precision. Nor was that all, for a woodpecker beat reveille on a hollow tree. There was some compensation for this last annoyance, however, for after a brief sojourn in the vicinity of camp it became very tame and approachable.

The coming days, we knew, would be filled with the glamour of adventure. Wild life was everywhere, yet we antici-

Woodpeckers delight to drum on hollow trees. The rat-tat-tat-tat of their dull music echoes eerily through the silent forest. Even the diminutive downy species contributes its share when seeking grubs in the bark crevices of spruce and poplar.

pated journeying many miles on foot in search of diversity. Elk passed by the camp at night. Their deep-trodden paths lined the meadows and criss-crossed through the forest. Wary animals, they are endowed with keen scent and even keener eyesight. To approach them for camera work is difficult even against the wind, for always there is some old female seemingly on outpost duty as you stealthily endeavour to creep within range of an individual animal or a small herd. The hoarse barking cough of alarm they sound is quite sufficient to warn all elks in the vicinity to make themselves scarce. Nevertheless, we were often successful in our patient quest. It was hard work, but "good things are hard," as Plutarch said.

Controversy on the moose has long since entered the scientific arena in respect to the correct nomenclature which should be applied to this animal. Properly speaking the moose should be called elk (Alces Americanus), while the elk, so-called, should adopt its true name, wapiti (Cervus Canadensis). But old names, like old customs, die hard, and so persist in spite of science.

Although it is not generally known, the Riding Mountain supports the largest individual herd of wild elk on the continent existing in an entirely natural

The spotted coats of baby elk blend harmoniously with the underbrush in which they hide. Nature indeed cares for her unprotected wild things until they are able to fend for themselves.

state, unfenced, unfed and uncared for throughout the year. A conservative estimate of present numbers approximates some 5,000 head. Their protection, however, suffers the drawback of surrounding settlers who believe that elk and other big game are a gift from Providence set aside for a perpetual meat supply.

Elk, for so we will still call them, are the second largest of our deer family. The moose alone exceeds them in size, if not in majestic grandeur. Both grazing and browsing animals, they require for their habitat wooded uplands and meadows for a summer range, and open prairies to provide forage during the winter months. Like other members of the family, except the caribou, the female is without antlers. The deficiency, though, is balanced by the enormous horn growth of the adult males resembling in general shape that of their lesser relative, the mule deer. During the winter, elk of both sexes herd in large numbers, and even in the summer cows and calves gather together in bands of nearly equal strength. The bulls are supposed to be solitary during the spring and summer months; nevertheless we found many of them on the outskirts of the herds as if forming a protective ring about them.

At the end of May or beginning of June the females bring forth their calves which a few days after birth are able to follow the mother in her ramblings. There were many of these white-spotted youngsters throughout the elk country. We found the first lying peacefully in the shelter of a willow thicket. It was not apparently disturbed by our close approach, although it must have been fearful of a strange presence. As we prepared to take a photograph at close range it sprang to its feet, uttering blatting cries of surprise, and ran frantically within the thicker scrub a hundred yards away. With little trouble it was found again, crouched close to the ground, perfectly motionless. In a moment or two it raised its head and looked at us appealingly. Perhaps it then knew it would not be harmed, for it allowed us to caress it without apparent fear. After some minutes it stood up and sauntered to the open where its purpose was restrained long enough to snap the

camera. Later, from across an open portion of the Kennice Meadows, we watched the mother return to claim her offspring. The reunion was affectionately accompanied by a lavish tongueing of the calf's glossy coat before both disappeared into the forest beyond. Naturally we wondered where she had kept herself during our interference; for she must have heard the appealing voice of her calf as it fled. But cow-elk are like that, even in the face of apparent danger, relying no doubt upon the ability of their calves to successfully elude an enemy by remaining motionless or by suddenly disappearing from sight after a headlong rush for denser cover. Seeking calves to pose for the camera was indeed a laborious pastime, but the work entailed well rewarded us with additional knowledge of the habits of cow-elk and their handsome offspring.

The white-tailed deer is without doubt the best known of our game mammals. The sight of this beautiful animal bounding through the woods with flashing tail erect is familiar to the camper in the Riding Mountain.

Nature, it is truly said, is "Red in tooth and claw," for only through death, moving in an ever-vicious circle, can the wild life of the plains and forest exist. Amongst the winged denizens we are often privileged to witness some of the tragedies constantly perpetrated before our limited vision. Nemesis in the shadowy shape of a swooping Marsh hawk as it drops with lightning speed upon an unsuspecting duck. The laboured flight of a Butcher bird (Northern Shrike) carrying in its beak the still warm body of a mouse to impale upon a thorn that it may more readily devour the victim its small feet cannot grasp, are amongst the common sights of the marsh and woodland. But the cunning and ferocity displayed by the larger flesheaters in their quest for food, the pursuit and death of innocent victims, are seldom seen by human eyes. Nevertheless we were fortunate enough to witness the heartrending end of a baby-elk killed to assuage the pangs of canine hunger. Working from bush to

Beavers create deep ponds to ensure sufficient depth of water for their exacting needs during the months of winter. Sometimes the ponds are small. Often, though, they may extend for a mile or more, flooding many acres of poplar, spruce, and willow growth.

The thirteen striped ground squirrel, better known as the striped gopher, is a member of the agile squirrel family. Terrestial in habit, as contrasted with the tree dwelling species, they quite often escape observation because the environment of their habitat blends perfectly with the striped pelage.

Deer occasionally grow freak horns. Moose, though, are rather the exception. Why an unpalmated brow tine should have developed in this instance one can only surmise.

bush about a willow-scattered meadow in search of elk for the camera we perceived a female grazing a few hundred yards away. We watched her for some time from behind cover. Presently, she must have caught our wind or suspected an alien presence, for she cautiously walked towards where we were hidden with head erect, coughing an alarm. From her actions it was evident she had a calf cached in the vicinity, but our desire was her nearer approach for a close-up. Suddenly she bounded away, whereupon a calf rushed from a clump of willows close by, headed in the opposite direction for the shelter of the forest. For a moment we watched its progress with interest, little suspecting the untimely end it would suddenly meet. It had scarcely entered a vista between the trees on the bordering growth of the meadow when three wolves appeared from the underbrush and fell upon the unfortunate animal bearing it to the ground. It was the work of a moment which we were powerless to prevent although we hurried forward shouting lustily in an effort to drive the marauders away. At our approach the wolves snarled menacingly their objection to an intrusion upon their prospective feast before retreating reluctantly into the woods.

Antlers with bleached skulls attached are sometimes found in the forest. The poacher's rifle rather than old age is a probable explanation. Whatever the cause they create an imposing setting.

Upon examination of the lifeless form we found the jugular vein severed, the tender underparts cruelly lacerated and the left hind leg hamstrung. On our way to camp, 20 minutes later, we again passed the scene of the tragedy. Little remained of the carcass, for the wolves had returned during our absence and feasted gluttonously.

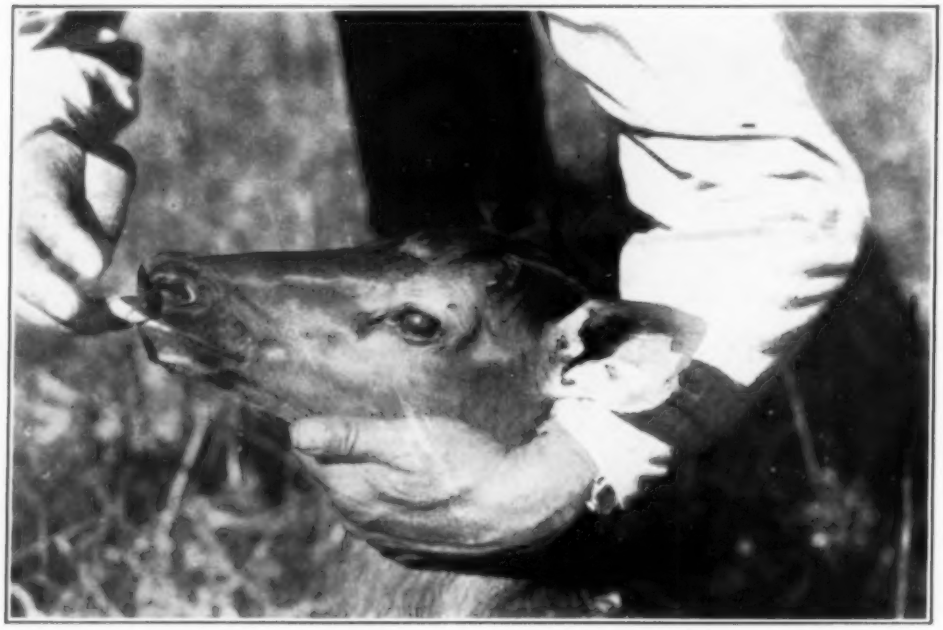
That night, and thereafter, wolves howled from the direction of where the elk-calf met its fate, and we knew that tragedy lurked about their menacing presence.

After some difficulty we located the main elk herd of the Kennice Meadows. It presented a never-to-be-forgotten sight. About 250 animals surrounded us as we sat in the willows and watched them pass. Cows and calves moved serenely by, heedless of our appearance amongst them. Calves lost in the melee blatted appealingly to be answered as often by their dams. Bulls "bugled" their high-pitched notes from the outskirts and beyond them the occasional howl of a wolf added to the din. Photography, though, was impossible owing to the density of the intervening scrub and a lowering sky.

Baby elk prefers to lie motionless in the grass rather than stand before a camera. This little fellow required support and restraint before he reluctantly consented to pose.

Most game wardens collect antlers to adorn their cabin yards. The late occupant of the Kennice cabin in the Riding Mountain Park was no exception, for many had been carried in from the range to swell an ever-growing pile.

Elk calves are a delight to the nature lover and may be readily found on the Riding Mountain range during the month of June. One may caress them, too, without fear of a jealous mother asserting her maternal rights.



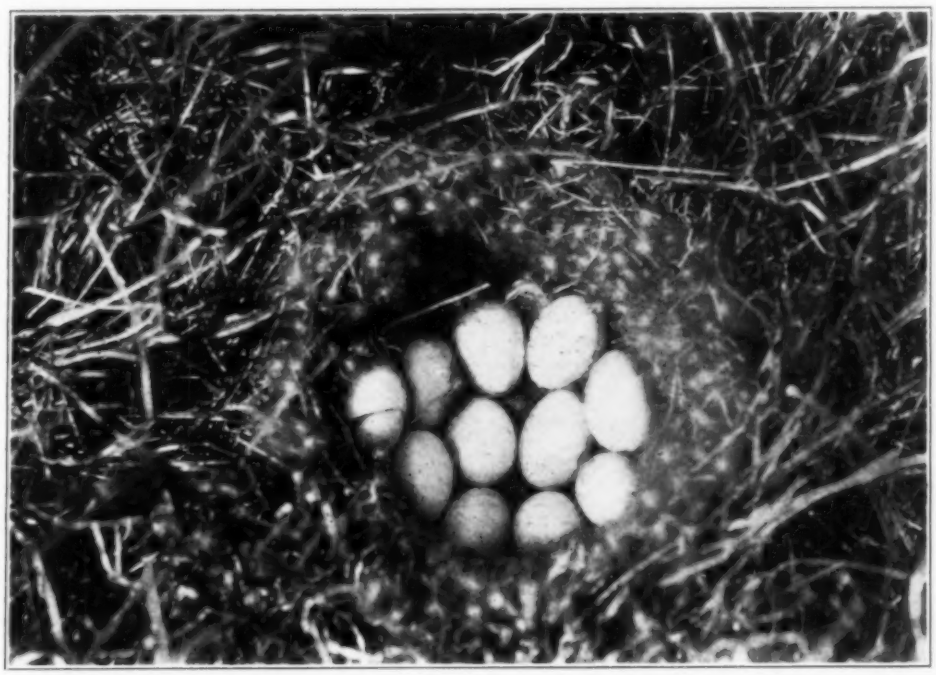
Young elk are easily raised from infancy by artificial means. Teaching them to drink milk, however, presents at first the same difficulties which attend the effort on behalf of barnyard calves.

Each evening we plodded wearily homeward to the base camp after many miles of travel. Lunch was carried in a basket-pack and enjoyed in some secluded spot while future plans were discussed. Interest was everywhere in this abode of the wild things. It was difficult to determine what held the greatest appeal for possibilities of closer study. Hours were spent patiently awaiting the arrival of beaver on the surface of their ponds where towards dusk they would forsake the lodges and travel afield to gather fresh tree cuttings and marsh grass to be pushed or carried to the larders in their dome-shaped homes.

A colony of striped gophers afforded much amusement. Though shy on first acquaintance, as most wild things are, they soon overcame their coyness. Diving precipituously into the entrance of their runways they would pop up again at most unexpected places, using the innumerable holes for a quick getaway and an equally sudden re-appearance at some distant point. After many attempts to photograph them one at last posed for the camera.

Amongst the lush grass and tule of the marshes ducks had built their nests, beautifully constructed receptacles cosily lined with soft breast feathers. It might easily be imagined that the eggs were first laid and the nest built about them, so perfectly did they fully occupy the interior. On the deeper waters coots taxied along the surface in a hurried take-off, and in deserted beaver ponds musk-rats rippled the placid surface. At evening the harsh love call of the loon echoed across the lakes and hillsides, answered after a momentary pause by its nesting mate in the reedy banks beyond. Within the thickets white-tail deer paused timidly before leaping from sight through the deeper underbrush.

Freaks of nature, too, are always interesting, mainly because nature seldom deviates from an established plan. At a ranger's cabin not far from camp a



The feathery lining of the wild duck's nest is plucked from the breast of the parent bird. Feathers retain the body heat, act as a protective covering during enforced absence, and, through their removal, enable the eggs to be brought close to the warmth of the skin.

collection of moose, elk and deer antlers, gathered casually from the surrounding country, created an imposing monument to the memory of the proud heads they once adorned. Amongst them was a bleached moose skull, freakish to an extreme. Originally two spades had been naturally appended. The right-hand one had broken off, but below where it had existed during life a brow tine had simultaneously developed resembling that of an elk in form and structure. Although, it is said, such abnormal growths are not uncommon, observers wonder whether an intermingling of blood of the two species or the partial reversion to the antler type of an ancient progenitor, is responsible for the strange addition.

Whisky jacks are often a pest to the camper. Nevertheless, their friendliness compensates for the minor depredations they commit.

The drowsy evening chatter of the marsh birds would lack richness without the loon's laughing contribution of song. A voice elusive as the bird itself rises from the placid surface of the lakes to gladden the heart of a nesting mate amongst the reeds.

With reluctance we were at last compelled to strike camp and return again to workaday life. Adventure had coloured experience and excitement had brought forgetfulness to the cares civilization imposes upon us. During ecstatic days we learnt more of the forest folk and their devious ways. And when the hush of night descended about the evening camp fires we learnt, too, that nature was indeed mortal and the Great Designer very near.

Photographs used to illustrate this article are by H. U. Green and Kenneth Fuller Lee.

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PLAYER'S
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Editor's Note Book

Mr. Helmer Bryn, Norwegian Consul General to Canada writes the editor as follows: "In its August number the Canadian Geographical Journal has published a highly interesting article on Port Churchill, written by Denzil G. Ridout. In mentioning Captain Jens Munk's expedition to Hudson Bay in the year 1619, the author has, however, used some inadequate designations. He says: 'the famous Danish Captain Jens Munk' and 'sent by King Christian IV of Denmark' and 'the Danish Crown.'

"At the time when the expedition took place Norway and Denmark were united under the same King. Captain Jens Munk was born in Norway and he undertook the expedition as an officer in the common Danish-Norwegian Navy, and His Majesty King Christian IV was King both of Norway and Denmark."

* * *

An area called the Thelon Game Sanctuary, comprising 15,000 square miles along the Thelon and Hanbury rivers east of Great Slave Lake, was set aside in 1927 for the protection of all forms of wild life, but primarily to save from extinction the last remaining herd of musk oxen on the North American mainland.

W. H. B. Hoare, an Investigator of the North West Territories and Yukon Branch, Department of the Interior, was detailed to explore the Sanctuary in 1928. For 12 months he was engaged in taking a census of the wild life, recording information about the migration of caribou with particulars respecting the prevalence of predatory and other animals; explaining to trappers, Indians and Eskimos that it was unlawful to kill or molest game in the prescribed area; and he paid special attention to determining the number and general condition of the musk oxen. In September of the following year Mr. Hoare returned to Ottawa, prepared a report of his findings and submitted to his Department a plan for the organization of a warden service for the further protection of wild life.

In 1930 he again visited the Thelon Game Sanctuary and for 15 months devoted his time to establishing bases for the warden service, educating natives in the conservation of wild life and making further studies of problems affecting the welfare of Indians and Eskimos.

Mr. Hoare's report, "Conserving Canada's Musk Oxen", was published some time ago and is available at the North West Territories and Yukon Branch, Department of the Interior, Ottawa.

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At the centenary meeting of the British Association for the Advancement of Science, the Editor of the Canadian Geographical Journal will present a paper on the Geography of Canada, and will also submit to the Association an interesting experiment in the form of an animated map of Canada. This attempt to illustrate on the screen the gradual discovery of the Dominion, in the preparation of which Mr. Burpee has had the enthusiastic co-operation of Mr. Frank Lunch, of the National Development Bureau of Canada, and of Captain Frank Badgley, of the Canadian Government Motion Picture Bureau, will first show the voyage of Leif Eriksson from Scandinavia to America. As the little Viking ship touches the shores of America, a section of the coast of Labrador appears on the screen, with the name Helluland; the ship sails on down the coast, and Markland appears, followed by Vinland. Then Cabot sails from Bristol in the "Mathew", and as he lands on this side a bit of Cape Breton appears on the screen. Jacques Cartier follows, and the Gulf and River St. Lawrence are added to the map. So the story of discovery, on the Atlantic, the Pacific, the Arctic, and inland, is built up on the map, until the picture is complete.